

**TRAINING PROGRAM:**

OPERATIONS TRAINING
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**\*LESSON PLAN TITLE:**

PERFORM IDLE RECIRCULATION LOOP STARTUP SURVEILLANCE
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**APPROXIMATE TIME REQUIRED:** 20 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

New Material

Minor Revision

Major Revision

**REASON FOR REVISION:**

Update JPM to New Format for NRC exam. This JPM replaces NRC 3/1998 JPM GG-1-JPM-RO-B3312.00

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>	_____	_____
	Preparer	Date
<b>Reviewed By:</b>	_____	_____
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>	_____	_____
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>	_____	_____
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>	_____	
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet      ENS      ENN      Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

1. Standard cues for valve operation:
  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
    - 2) "Full closed" = "red light off, green light on"
  - b. Manual valves
    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
    - 2) "Full closed" = "you feel resistance in the clockwise direction"
2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
3. Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.
4. Obtain Shift Management's permission before opening any control panel door or instrument cover.
5. It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.
6. Consideration of electrical safety must be made during the performance of certain tasks involving electrical circuits and circuit breakers. The performer should be aware that working on or near energized equipment requires, at a minimum, wearing 100% cotton clothing and low voltage (Class 0) gloves while removing or securing shock hazards such as chains, jewelry, watches and metal-framed eyeglasses. Operating or racking circuit breakers may require additional PPE. Details can be found in Att. 2 of the Electrical Safety Rulebook and General Operating procedure 04-S-04-2 (Operation of Electrical Circuit Breakers)

**Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.**

## **ADM Task 1:      Perform Idle Recirculation Loop Startup Surveillance**

Setting: Simulator  
Type: RO  
Task: CRO-B33(1)-012  
K&A: 202001 2.1.20: 4.3/4.2; A1.11: 2.6/2.7; A1.13: 2.6/2.6; A2.21: 3.3/3.7  
2.1.23: 3.9/4.0; 2.1.31: 4.2/3.9; 2.2.12: 3.0/3.4  
Safety Function: Heat Removal (4); Reactivity (1) ADMINISTRATIVE  
Time Required: 20 minutes  
Time Critical: No  
Faulted: No  
Performance: Perform  
Reference(s): Surveillance 06-OP-1B33-V-0005  
Handout(s): Surveillance 06-OP-1B33-V-0005  
# Manipulations: N/A  
# Critical Steps: 12  
Group #: 2

### Simulator Setup/Required Plant Conditions:

- 1 IC-12 < 30% Power
- 2 Ensure Recirc Loop 'A' flow is < 22,300 gpm.
- 3 Ensure Recirc Loop 'B' Suction and Discharge valves are open and the Recirc Pump circuit breakers are in alignment for start.

### Safety Concerns:

- 4 None

### Equipment Needed:

1. Stop Watch
2. Standard Steam Tables (may elect to use Attachment II of the Procedure)
3. Calculator

Initial Condition(s):

- The plant is operating at 21 % Power.
- Recirc Pump 'A' is operating in Slow Speed.
- Recirc Pump 'B' is secured following Flow Control Valve problems.
- The problems with Recirc Flow Control Valve 'B' have been corrected.
- Reactor Engineering has verified the Reactor is < 75% Rod Line.
- RWCU is operating in a normal lineup with suction from RPV Bottom head and Both Recirc Loops.

Initiating Cue(s):

- You have been directed to perform the Idle Recirculation Loop Startup Surveillance 06-OP-1B33-V-0005 for starting Recirculation Loop 'B'.
- Inform the Control Room Supervisor when you are ready to proceed with the startup of the Recirculation Pump.

**Provide the Candidate with a marked up copy of Surveillance 06-OP-1B33-V-0005.**

## **ADM Task 1:      Perform Idle Recirculation Loop Startup Surveillance**

### **Notes**

1. Candidate may elect to use Attachment II Steam Tables instead of a Standard Steam Tables book. This is acceptable.
2. Candidate may walk through the locations of the indications prior to actually starting the surveillance. This is acceptable since from the start of the data collection and start of the Recirculation Pump is to be completed within 15 minutes.
3. This JPM is NOT Time Critical since if the time is out of specifications allowances for reverification of data is allowed by procedure and this is NOT a regulation or facility commitment.

**Task Overview:** This task is to perform the data collection for the surveillance used to verify Recirculation Loop and Reactor Temperatures are within specifications for a startup of an idle Reactor Recirculation Loop with the plant operating at power. This Surveillance includes use of Steam Tables and calculation.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

- ☐\*      *Record Idle Loop 'B'.*  
**Standard:** Candidate records 'B' on Data Sheet II for Step 5.2.1.  
**Cue:**  
**Notes:**
- ☐      Initials Reactor Operating below 75% Rod Line.  
**Standard:** Candidate initials the reactor is below 75% rod line on Data Sheet II Step 5.2.1a.  
**Cue:**  
**Notes:**
- ☐\*      *Record clock time.*  
**Standard:** Candidate records digital clock time from the Control Room Clock on Data Sheet II Step 5.2.2.  
**Cue:**  
**Notes:**

**Sequence of the data collection is NOT critical.**

- ☐\* Record Steam Dome Pressure.  
**Standard:** Candidate records Reactor Steam Dome Pressure using 1C34-PI-R605 on Data Sheet II Step 5.2.2a.  
**Cue:**  
**Notes:** Section 2B of H13-P680. If the candidate chooses to use the digital indication on the PDS computer this is acceptable.
  
- ☐\* Add 14.7 psi to the number obtained in the previous step to determine PSIA.  
**Standard:** Candidate adds 14.7 psi and records on Data Sheet II Step 5.2.2a.  
**Cue:**  
**Notes:**
  
- ☐\* Record Bottom Head Drain Line Temperature 1B21-TR-R643 Point 4.  
**Standard:** Candidate records Bottom Head Drain Line Temperature Point 4 on Data Sheet II Step 5.2.2b.  
**Cue:**  
**Notes:** 1B21-TR-R643 Temperature Recorder on H13-P614 is a digital chart recorder in the back panels.
  
- ☐\* Record Recirculation Loop Suction Temperature 1B21-TR-R643 Point 5 Loop A.  
**Standard:** Candidate records Recirculation Loop Suction Temperature 1B21-TR-R643 Point 5 Loop A on Data Sheet II Step 5.2.2c.  
**Cue:**  
**Notes:** 1B21-TR-R643 Temperature Recorder on H13-P614 is a digital chart recorder in the back panels.
  
- ☐\* Record Recirculation Loop Suction Temperature 1B21-TR-R643 Point 6 Loop B.  
**Standard:** Candidate records Recirculation Loop Suction Temperature 1B21-TR-R643 Point 6 Loop B on Data Sheet II Step 5.2.2c.  
**Cue:**  
**Notes:** 1B21-TR-R643 Temperature Recorder on H13-P614 is a digital chart recorder in the back panels.

- ☐\* Record Operating Loop Flow 1C51-FR-614 Blue Pen Loop A.  
**Standard:** Candidate records Operating Loop Flow 1C51-FR-R614 Blue Pen Loop A on Data Sheet II Step 5.2.2d.  
**Cue:**  
**Notes:** 1C51-FR-R614 Recirc Pmp A/B Driving Flo on H13-P680 section 3B. The candidate may choose to use PDS computer digital information. This is acceptable.
- ☐\* Use Standard Steam Tables and the pressure calculated in 5.2.2a to determine Saturation Temperature.  
**Standard:** Candidate uses Standard Steam Tables and the pressure calculated in 5.2.2a to determine Saturation Temperature and records this on Data Sheet II Step 5.2.3.  
**Cue:**  
**Notes:** Temperature should be  $\pm 5^{\circ}\text{F}$ . If interpolation is needed, cue the candidate that if a conservative value direct from the steam tables will still pass the surveillance it is acceptable to use this value.
- ☐\* Determine differential temperature Saturation Temperature minus Bottom Head Temperature.  
**Standard:** Candidate determines differential temperature Saturation Temperature minus Bottom Head Temperature record on Data Sheet II Step 5.2.4a.  
**Cue:**  
**Notes:** Calculations are on Data Sheet II.
- ☐\* Determine differential temperature Loop Suction Temperature A minus B.  
**Standard:** Candidate determines differential temperature Loop Suction Temperature A minus B record on Data Sheet II Step 5.2.4b.  
**Cue:**  
**Notes:** Calculations are on Data Sheet II.
- ☐\* Determine the acceptability of the differential temperatures calculated in Step 5.2.4.  
**Standard:** Candidate determines the acceptability of the differential temperatures calculated in Step 5.2.4.  
**Cue:**  
**Notes:** Dome to Bottom Head  $<100^{\circ}\text{F}$ ; Loop to Loop  $<50^{\circ}\text{F}$ .

- ☐ Check annunciator H13-P680 3A-E11, RECIRC PUMP B TEMP INTLK ACTUATED is not in alarm.  
**Standard:** Candidate checks annunciator H13-P680 3A-E11, RECIRC PUMP B TEMP INTLK ACTUATED is not in alarm.  
**Cue:**  
**Notes:**

Reports to Control Room Supervisor data collection for 06-OP-1B33-V-0005 is complete ready to start Recirc Pump 'B'. Candidate should inform the supervisor when the 15 minutes is up.

Task Standard(s):

Idle Recirculation Loop Startup Surveillance 06-OP-1B33-V-0005 Data Sheet II is complete up to starting the Recirc Pump.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_



## **ADM Task 1:      Perform Idle Recirculation Loop Startup Surveillance**

Follow-Up Questions & Answers:

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Comments:

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# **Perform Idle Recirculation Loop Startup Surveillance**


**Give this page to the student**

## **Initial Condition(s):**

- The plant is operating at 21 % Power.
- Recirc Pump 'A' is operating in Slow Speed.
- Recirc Pump 'B' is secured following Flow Control Valve problems.
- The problems with Recirc Flow Control Valve 'B' have been corrected.
- Reactor Engineering has verified the Reactor is < 75% Rod Line.
- RWCU is operating in a normal lineup with suction from RPV Bottom head and Both Recirc Loops.

## **Initiating Cue(s):**

- You have been directed to perform the Idle Recirculation Loop Startup Surveillance 06-OP-1B33-V-0005 for starting Recirculation Loop 'B'.
- Inform the Control Room Supervisor when you are ready to proceed with the startup of the Recirculation Pump.

 <b>Entergy</b>	<input type="checkbox"/> <input type="checkbox"/>	QUALITY RELATED	EN-WM-105	<input type="checkbox"/> REV.0
		INFORMATIONAL	U SE <input type="checkbox"/> PAGE 24 OF	

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☐ ☐ ☐ ATTACHMENT

9.2IMPACT TEMPL

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DATE

REVIEWER

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E: ☐ Remove and replace the expansion joint N19-XJG521 on the suction of Condensate Pump 'A' N19-C003A due to excessive leakage. Replacement will require breaching the Condensate pump suction

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n. COMPONENT MODE: ( ) INSV (X) OOSV ( ) AVAILA

B

LE PLANT MODES & CONDITIO

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S: Plant may be in any condition. Preferred is plant in cold shutdown. Condensate Pump 'A' must be secured and isolated on the process side. Vent and drain the pump suction and discharge piping

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g. EFFECTS ON ASSOCIATED SYSTEM AND COMPONENT

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S: ☐ Condensate System will be at two-thirds capacity. ☐ Suction pressures to the suction of the Reactor Feed Pumps may be reduced but overall the plant may achieve 100% power

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r. PRE-MAINTENANCE ACTIVITI

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S: ☐ Reduce Reactor power and Secure Condensate Pump 'A' and monitor Condensate Booster Pump and Reactor Feed Pump suction pressures. Coordinate with Radwaste to monitor operation of Condensate Deep Bed Demineralize

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s. POST-MAINTENANCE ACTIVITI

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e. DOES THE ACTIVITY HAVE THE POTENTIAL TO SCRAM/TRIP THE PLANT: ( ) YES (X)


NO SECURITY/FIRE/CONTROL ROOM ENVELOPE BARRIER BREACH: ( ) YES (X)

NO RPS AFFECTED: ( ) YES (X)

NO ESF/EFSAS AFFECTED: ( ) YES (X)

NO ALARMS/COMPUTER POINTS AFFECTED (IF YES, LIST ON ATTACHED SHEET) ( ) YES (X)

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		INFORMATIONAL	U SE <input type="checkbox"/> PAGE 25 OF	

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<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> ATTACHMENT	9.3 OPERATIONAL IMPACT TEMPL
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E ☐ Sheet 1 o

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OPERATIONAL IMP

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NEREACTIVITY IMPACT (REQUIRE

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): ☐ Securing a single Condensate Pump at 100% power will result in a reduction in Condensate Booster Pump suction pressure and a slight reduction of Feedwater suction pressure. There should be no appreciable effect of core reactivity.

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y. **POTENTIAL SYSTEM/COMPONENT EFFECT**

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S: ☐ Securing a single Condensate Pump at full power is within the design of the systems. This will result in a reduced suction pressure to the Condensate Booster Pumps and slight reduction in suction pressure for the Reactor Feed Pumps. Excessive leak by of the Condensate Pump suction valve N19-F016A could cause a reduction in Main Condenser Vacuum.

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m. **ACTUAL OR POTENTIAL MEASURE OR CONTINGENCY ACTION REQUIRED**

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D: ☐ If second Condensate or Condensate Booster Pumps are lost, reactor power should be reduced to within the capabilities of Condensate and Feedwater System operations. Entry into the Loss of Feedwater Flow ONEP may be required.

**TRAINING PROGRAM:**

OPERATIONS TRAINING

**\*LESSON PLAN TITLE:**REVIEW A WORK ORDER AND TAGOUT FOR ADEQUACY  
AND IMPACT TO PLANT**APPROXIMATE TIME REQUIRED:** 20 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

New Material

Minor Revision

Major Revision

**REASON FOR REVISION:**

New JPM

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>	_____	_____
	Preparer	Date
<b>Reviewed By:</b>	_____	_____
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>	_____	_____
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>	_____	_____
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>	_____	_____
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet      ENS      ENN      Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

1. Standard cues for valve operation:
  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
    - 2) "Full closed" = "red light off, green light on"
  - b. Manual valves
    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
    - 2) "Full closed" = "you feel resistance in the clockwise direction"
2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
3. Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.
4. Obtain Shift Management's permission before opening any control panel door or instrument cover.
5. It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.
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**Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.**

### **ADMIN Task 3: Review a Work Order and Tagout for Adequacy and Impact to Plant**

<u>Setting:</u>	Classroom
<u>Type:</u>	SRO
<u>Task:</u>	SRO-ADMIN-048; SRO-M&S-003; SRO-M&S-004; SRO-M&S-005;
	SRO-M&S-006
<u>K&amp;A:</u>	Generic 2.2.13: 3.8; 2.2.17: 3.5
<u>Safety Function:</u>	N/A
<u>Time Required:</u>	20 minutes
<u>Time Critical:</u>	No
<u>Faulted:</u>	No
<u>Performance:</u>	Simulate
<u>Reference(s):</u>	02-S-01-38 Protective Tagging EN-OP-102 Protective and Caution Tagging; EN-OP-106 eSOMS Clearance Module Users Manual OPG – 15 OPS Department Equipment Tagout Process M-1055C E-1142 SFD-1055B SOI 04-1-01-N23-1 Heater Vents and Drains/Extraction Steam System Industrial Safety Rule book
<u>Handout(s):</u>	<b>Prepared Tagout</b> <b>Work Order Impact Statement</b> 02-S-01-38 Protective Tagging EN-OP-102 Protective and Caution Tagging; EN-OP-106 eSOMS Clearance Module Users Manual OPG – 15 OPS Department Equipment Tagout Process M-1055C E-1142 SOI 04-1-01-N23-1 Heater Vents and Drains/Extraction Steam System
<u># Manipulations:</u>	N/A
<u># Critical Steps:</u>	1
<u>Group #:</u>	N/A

Simulator Setup/Required Plant Conditions: None

Safety Concerns: None

Equipment Needed: None.

Initial Condition(s):

- The Plant is 100% power.
- Heater Drain Pump 'A' is leaking around the pump seals.
- Work is scheduled for the next shift to replace the pump seals.

Initiating Cue(s):

- You are the Control Room Supervisor.
- Review the Prepared/Reviewed Tagout for acceptability prior to releasing tags to hang for the associated work.
- The associated Work Order Impact statement is included for information on the workscope requesting the boundary.

Give the candidate the copy of the tagout and work impact and operational impact statements



## **ADMIN Task 3: Review a Work Order and Tagout for Adequacy and Impact to Plant**

### **Notes**

1. This is an Administrative JPM.

**Task Overview:** This task is to review a Work Order Impact statement and Prepared/Reviewed Clearance to support the work order and determine acceptability to hang the tag. The Clearance is sufficient for the work to be performed, however there is not double valve isolation as required for a high energy system. Per EN-OP-102 Attachment 9.2 section 3.1.5, a Job Hazards Analysis must be performed. Heater Drains is a High Energy system when the plant is in operation with the turbine in service. The single operating Heater Drain Pump is operating at approximately 335°F at 584 psia. This meets the criteria of a high energy system.

**Tasks: Critical tasks are underlined, italicized, and denoted by (\*).**

- ☐ Review the proposed Clearance based on the Work Impact Statements, facility drawings, and procedures to determine the boundaries and whether the clearance is acceptable and any other actions.

**Standard:** The candidate reviews the proposed Clearance based on the Work Impact Statements, facility drawings, and procedures to determine the boundaries and whether the clearance is acceptable and any other actions.

**Cue:** None

**Notes:**

- ☐\* *Determines the Clearance has acceptable boundaries but requires a Job Hazards Analysis be performed.*

**Standard:** The candidate determines the Clearance has acceptable boundaries but requires a Job Hazards Analysis be performed.

**Cue:** None

**Notes:** \*\* See notes on next page for alternate acceptable answers.

Evaluator may ask the candidate the basis for their decision.

**Task Standard(s):**

Clearance has been reviewed and deemed acceptable but requires a Job Hazards Analysis be conducted and communicated to the Tagout Holders.

\*\* The Candidate may reject the tagout requiring more information regarding the hazards be included in the Special Instructions. This is acceptable.

\*\* The Candidate may also reject the tagout based on the desire for double valve isolation and not allow the work to be performed until the plant is shutdown and Heater Drains secured since there is NO way to isolate the suction side with double valve protection. If this is the basis given by the candidate this is acceptable.

\*\* The Candidate may indicate an Operations Lock will be placed on the tagout until craft personnel have been briefed to the satisfaction of the Control Room Supervisor. This is acceptable.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_

### **ADMIN Task 3:** Review a Work Order and Tagout for Adequacy and Impact to Plant

Follow-Up Questions & Answers:

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Comments:

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## **Review Work Order Impact and Clearance**

**Give this page to the student**

### Initial Condition(s):

- The Plant is 100% power.
- Heater Drain Pump 'A' is leaking around the pump seals.
- Work is scheduled for the next shift to replace the pump seals.

### Initiating Cue(s):

- You are the Control Room Supervisor.
- Review the Prepared/Reviewed Tagout for acceptability prior to releasing tags to hang for the associated work.
- The associated Work Order Impact statement is included for information on the workscope requesting the boundary.

Give the candidate the copy of the tagout and work impact and operational impact statements

**TRAINING PROGRAM:**

OPERATIONS TRAINING
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**\*LESSON PLAN TITLE:**

DETERMINE THE IMPACT ON PLANT OPERATIONS FOR A FAILED RELAY
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**APPROXIMATE TIME REQUIRED:** 15 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

New Material

Minor Revision

Major Revision

**REASON FOR REVISION:**

New JPM

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>	_____	_____
	Preparer	Date
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  - b. Manual valves
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## **ADMIN Task 2:      Determine the impact on plant operations for a failed relay**

Setting: Classroom  
Type: SRO  
Task: SRO-M&S-010  
K&A: Generic 2.1.24: 3.1; 2.1.2: 4.0; 2.2.24: 3.8  
Safety Function: N/A  
Time Required: 15 minutes  
Time Critical: No  
Faulted: No  
Performance: Perform  
Reference(s): Tech Spec Loop Logic 17-S-06-5  
E-1181-063 & 067 also 026; 037; 041; 043  
GGNS Technical Specifications 3.3.6.3 & 3.6.1.7  
Handout(s): GGNS Electrical Drawings; GGNS Technical Specifications  
# Manipulations: N/A  
# Critical Steps: 2  
Group #: N/A

Simulator Setup/Required Plant Conditions: None.

Safety Concerns: None.

Equipment Needed: None.

Initial Condition(s):

- The Plant is 100% power.

Initiating Cue(s):

- You are the Shift Supervisor.
- Electrical Maintenance has reported relay 1E12-K93A has a burned up coil (failed).
- Determine the impact of the failure on plant operations.
- Identify any associated Technical Specification impact for the failed relay.

## **ADMIN Task 2: Determine the impact on plant operations for a failed relay**

### **Notes**

1. This is an Administrative JPM.
2. This is an activity performed on a routine basis by SRO's during Agastat relay replacement.

**Task Overview:** This task is to use facility electrical drawings to determine the effects a failed relay will have on the plant and its associated systems. This is a required skill for an SRO. SROs use this skill in troubleshooting plant problems, determining proper plant operation, and assessing how a problem affects facility compliance with Tech Specs.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

**Candidate may elect to use the Tech Spec Loop Logics 17-S-06-5 (Attachment II page 37 of 76.**

- ☐ Identify electrical prints associated with System E12 (RHR) is E-1181.  
**Standard:** Candidate identifies the E12 electrical prints are E-1181.  
**Cue:** None  
**Notes:** The candidate may use the SOI Reference section or a Print to System Cross Reference table. E-1180 prints are also associated with RHR but not applicable to this relay.
- ☐ Locate the Relay Tabulation Print. (E-1181-063).  
**Standard:** Candidate locates the Relay Tabulation Print.  
**Cue:** None.  
**Notes:** The first print E-1181-00 is the index print for the set. The candidate may through experience have an idea of where to go.
- ☐ Identify which print relay E12-K93A is located on. (E-1181-067 GE sheet 6).  
**Standard:** Candidate locates the relay E12-K93A on the prints  
**Cue:** None.  
**Notes:** Should identify what relays/components are affected by E12-K93A remaining de-energized under all conditions.  
Other components affected E12-K95A and E12-K30A. This is found on E-1181-063.



- \* Identify the other components affected by E12-K93A in a de-energized state.  
**Standard:** Candidate uses E-1181-067 and other prints to determine the affects of E12-K93A remaining de-energized.  
**Cue:** None  
**Notes:** E12-K93A is a 10 min 51 second (10.85 min) pickup relay (energizes and swaps contacts after 10.85 minutes) This Relay is connected to the RHR Containment Spray Automatic Initiation Logic and E12-F048A, RHR A Heat Exchanger Bypass Valve.

A failure of E12-K93A means contacts M1-R1 will remain closed keeping **E12-K95A** energized as long as a LOCA signal is present preventing closure of E12-F048A and the valve remaining closed.

A failure of E12-K93A means contacts T2-M2 will remain open preventing the automatic initiation of Containment Spray on a High Containment Pressure signal. This is the Automatic section of the circuit for E12-K31A; **K30A**; K33A; and K127A. Manual Initiation of Containment Spray is still available but the E12-F048A will remain open. The valve can be cycled closed and open using the handswitch.

- \* Identify the associated Technical Specification for the affected components.  
**Standard:** Candidate uses GGNS Technical Specifications to locate the Specification for RHR Containment Spray Instrumentation 3.3.6.3.  
**Cue:** None  
**Notes:** This would cause RHR 'A' Containment Spray Instrumentation to be Inoperable for Technical Specifications 3.3.6.3 Condition A/C. An alternate conservative call is Technical Specification 3.6.1.7, RHR Containment Spray Mode. Either is acceptable

All the candidate has to do with Technical Specifications is identify the Spec.

Task Standard(s):

\* E12-K93A is the 10.85 minute time delay relay. E12-K93A remaining de-energized will cause Automatic initiation of RHR 'A' Containment Spray to NOT function and E12-F048A, RHR 'A' Heat Exchanger Bypass Valve on a LOCA signal can be closed using the handswitch, however the valve will return to the open position per the LOCA signal.

\* RHR Containment Spray 'A' Instrumentation is Inoperable per Tech Spec 3.3.6.3 OR 3.6.1.7

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_

**ADMIN Task 2:      Determine the impact on plant operations  
for a failed relay**

Follow-Up Questions & Answers:

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Comments:

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## **Determine the impact on plant operations for a failed relay**

**Give this page to the student**

### Initial Condition(s):

- The Plant is 100% power.

### Initiating Cue(s):

- You are the Shift Supervisor.
- Electrical Maintenance has reported relay 1E12-K93A has a burned up coil (failed).
- Determine the impact of the failure on plant operations.
- Identify any associated Technical Specification impact for the failed relay.

**TRAINING PROGRAM:****OPERATIONS TRAINING****\*LESSON PLAN TITLE:****DETERMINE LCO ACTIONS AND GENERATE eSOMS LCO****APPROXIMATE TIME REQUIRED:** 20 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

New Material

Minor Revision

Major Revision

**REASON FOR REVISION:**

New JPM

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>	_____	_____
	Preparer	Date
<b>Reviewed By:</b>	_____	_____
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>	_____	_____
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>	_____	_____
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>	_____	_____
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet      ENS      ENN      Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

1. Standard cues for valve operation:
  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
    - 2) "Full closed" = "red light off, green light on"
  - b. Manual valves
    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
    - 2) "Full closed" = "you feel resistance in the clockwise direction"
2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
3. Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.
4. Obtain Shift Management's permission before opening any control panel door or instrument cover.
5. It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.
6. Consideration of electrical safety must be made during the performance of certain tasks involving electrical circuits and circuit breakers. The performer should be aware that working on or near energized equipment requires, at a minimum, wearing 100% cotton clothing and low voltage (Class 0) gloves while removing or securing shock hazards such as chains, jewelry, watches and metal-framed eyeglasses. Operating or racking circuit breakers may require additional PPE. Details can be found in Att. 2 of the Electrical Safety Rulebook and General Operating procedure 04-S-04-2 (Operation of Electrical Circuit Breakers)

**Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.**

## **ADMIN Task 1:      Determine LCO Actions and Generate eSOMS LCO**

Setting: Classroom  
Type: SRO  
Task: SRO-ADMIN-038; SRO-NO-016; SRO-NO-015; SRO-NO-030  
K&A: Generic 2.1.12: 4.0  
Safety Function: Electrical (6)  
Time Required: 20 minutes  
Time Critical: No  
Faulted: No  
Performance: Simulate  
Reference(s): GGNS Tech Specs 3.8.1;  
02-S-01-17, Control of Limiting Conditions for Operations;  
06-OP-1R20-W-0001 Plant AC/DC Weekly Lineup  
Handout(s): Completed 06-OP-1R20-W-0001 Att. II  
02-S-01-17  
# Manipulations: N/A  
# Critical Steps: 15  
Group #: N/A

Simulator Setup/Required Plant Conditions: None.

### Safety Concerns:

- 1 Only use a Training Program of eSOMS for completing LCO entries

### Equipment Needed:

- Computer with eSOMS LCO Training Program loaded.

### Initial Condition(s):

- The Plant is 100% power.
- ESF 12 Transformer is tagged out of service for Entergy – Mississippi Transmission Group work and is expected to be returned in 8 hours. A Potential LCO has been initiated for this work.
- The Shift Manager had a Plant AC/DC Weekly Lineup 06-OP-1R20-W-0001 Attachment II performed due to the ESF Transformer out of service.

### Initiating Cue(s):

- You are the Shift Supervisor.
- Review the completed surveillance 06-OP-1R20-W-0001 and perform any Shift Supervisor duties associated with this completed surveillance.

## **ADMIN Task 1:      Determine LCO Actions and Generate eSOMS LCO**

### **Notes**

1. This is an Administrative JPM.

**Task Overview:** This task is to review a completed surveillance for the Plant AC/DC Weekly lineup for the given plant conditions and determine actions to be taken and generate the eSOMS LCO for the conditions.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

- ☐\* *Review the completed surveillance and determine that the Franklin Substation Offsite Feeder is INOPERABLE.*

**Standard:** The candidate reviews the completed surveillance and determines the required number of Offsite Feeders is NOT met due to the Franklin Line and Port Gibson Line being out of service.

**Cue:** None

**Notes:**

- ☐\* *Identifies Technical Specification 3.8.1 Condition A is the new applicable LCO.*

**Standard:** The candidate determines that with the Port Gibson 115KV transmission line and Franklin 500KV transmission line out of service that LCO 3.8.1 Condition A is now applicable as a true LCO instead of Potential LCO.

**Cue:** None

**Notes:**

**The candidate's only task after identifying the LCO Condition is to enter Condition into eSOMS LCOTR.**

## **Using eSOMS LCOTR computer program**

### **DO NOT USE THE ACTUAL PLANT eSOMS LCO TRACKING SYSTEM!**

- \* *Log on to the eSOMS LCO Tracking System.*

**Standard:** The candidate logs onto a network computer with the eSOMS LCO Tracking System.

**Cue:** If needed, cue the candidate to use the training program LOGON  
ID: sro, PASSWORD: sro

**Notes:**

- \* *Open LCO Manager.*

**Standard:** The candidate opens LCO Manager.

**Cue:** None

**Notes:**

- \* *Click ADD button to add a new LCOTR and selects **Technical Specifications, Unit 1**, then receives a new LCOTR number.*

**Standard:** The candidate clicks ADD button and selects Technical Specifications, and Unit 1.

**Cue:** None

**Notes:**

- \* *Opens the new LCOTR and adds information in the Initiating Condition and System/Component # under the detail tab.*

**Standard:** The candidate opens the new LCOTR and adds information in the Initiating Condition and System/Component # under the detail tab.

**Cue:** None

**Notes:** Wording under initiating condition does NOT have to be exact. May make entries in System/Component & Comments/Notifications but NOT required.

Franklin 500 KV transmission line and Port Gibson 115 KV transmission line out of service.

- \* *Select Condition Statements tab and click ADD button.*

**Standard:** The candidate selects Condition Statements tab and click ADD button.

**Cue:** None

**Notes:**



- ☐\* Selects Type “TS”, “Unit 1” and “section 3.8.1”.  
**Standard:** The candidate selects Type “TS”, “Unit 1” and “section 3.8.1”.  
**Cue:** None  
**Notes:** Candidate may use a hard copy of Technical Specifications and Bases, the Reference Library or Display BM in MS Word to review the appropriate LCOs.
- ☐\* Clicks the box for Required Action A.1 and selects OK button.  
**Standard:** The candidate clicks the box for Required Action A.1 and selects OK button.  
**Cue:** None  
**Notes:** Sequence of selection of actions A.1 and A.2 is NOT critical.
- ☐\* Highlights row with condition A and required action A.1 and clicks Enter Action Statement button.  
**Standard:** The candidate highlights row with condition A and required action A.1 and clicks Enter Action Statement button.  
**Cue:** None  
**Notes:** Sequence of selection of actions A.1 and A.2 is NOT critical.

May select ALL actions for Condition A. This is acceptable.

- ☐\* Selects Current Action Statement Only and sets the time at 1200 and clicks OK button.  
**Standard:** The candidate selects Current Action Statement Only and sets the time at 1200 and clicks OK button.  
**Cue:** **Inform the candidate the time for initiation of the problem is 1200.**  
**Notes:** Sequence of selection of actions A.1 and A.2 is NOT critical.  
Candidate may select A.1 and A.2 actions and start both actions timing.  
This is acceptable.
- ☐\* Verifies check box for Condition A.1 and A.2 are checked and selects Actions/Timing tab.  
**Standard:** The candidate verifies check box for Condition A.1 and A.2 are checked and selects Actions/Timing tab.  
**Cue:** None  
**Notes:** Sequence of selection of actions A.1 and A.2 is NOT critical.

- ☐\* Clicks check box for Required Action A.1 & 2 and clicks OK button.  
**Standard:** The candidate clicks check box for Required Action A.1 & 2 and clicks OK button.  
**Cue:** None  
**Notes:** Observes time start timing.

Sequence of selection of actions A.1 and A.2 is NOT critical.

**If ALL action statements are not selected starting actions A.1 and A.2 then the above steps must be performed for Actions A.1 and A.2.**

- ☐ Select Attributes tab and check appropriate attributes.  
**Standard:** The candidate selects Attributes tab and check appropriate attributes.  
**Cue:** None  
**Notes:**
- ☐\* Selects Verification tab and double clicks the Prepared row and enters 1200 for time.  
**Standard:** The candidate selects Verification tab and double clicks the Prepared row and enters 1200 for time.  
**Cue:** None  
**Notes:** **Time is NOT Critical** but must complete preparation and implementation for LCO to be ready for Shift Manager. Candidate may enter their name, NOT required.
- ☐\* Selects Verification tab and double clicks the Implemented row and enters 1200 for time.  
**Standard:** The candidate selects Verification tab and double clicks the Implemented row and enters 1200 for time.  
**Cue:** None  
**Notes:** **Time is NOT Critical** but must complete preparation and implementation for LCO to be ready for Shift Manager. Candidate may enter their name, NOT required.
- ☐ Exit the computer application.  
**Standard:** The candidate exits the computer application.  
**Cue:** None  
**Notes:**

Task Standard(s):

eSOMS LCOTR has been completed for Tech Spec 3.8.1 Condition A.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop:  
\_\_\_\_\_

**ADMIN Task 1:      Determine LCO Actions and Generate  
eSOMS LCO**

Follow-Up Questions & Answers:

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Comments:

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## **Surveillance Review and actions**

### **Give this page to the student**

#### **Initial Condition(s):**

- The Plant is 100% power.
- ESF 12 Transformer is tagged out of service for Entergy – Mississippi Transmission Group work and is expected to be returned in 8 hours. A Potential LCO has been initiated for this work.
- The Shift Manager had a Plant AC/DC Weekly Lineup 06-OP-1R20-W-0001 Attachment II performed due to the ESF Transformer out of service.

#### **Initiating Cue(s):**

- You are the Shift Supervisor.
- Review the completed surveillance 06-OP-1R20-W-0001 and perform any Shift Supervisor duties associated with this completed surveillance.

If needed eSOMS LCO TR Logon ID: sro  
Password: sro

**TRAINING PROGRAM:**

OPERATIONS TRAINING
---------------------

**\*LESSON PLAN TITLE:**

<u><b>DETERMINE PROTECTIVE ACTION</b></u> <u><b>RECOMMENDATIONS AND RADIOLOGICAL</b></u> <u><b>CONSIDERATIONS FOR ON-SITE</b></u> <u><b>PERSONNEL DETERMINE ADMINISTRATION OF</b></u> <u><b>POTASSIUM IODIDE</b></u>
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**APPROXIMATE TIME REQUIRED:** 15 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

☐ New Material    ☐ Minor Revision    ☐ Major Revision

**REASON FOR REVISION:**

New JPM

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>	Preparer	Date
<b>Reviewed By:</b>	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>	**Discipline Training Supervisor	Date
<b>Effective Date:</b>	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet    ☐ ENS    ☐ ENN    ☐ Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

1. ~~Standard cues for valve operation:~~
  - a. ~~MOVs:~~
    - 1) ~~"Full open" = "red light on, green light off"~~
    - 2) ~~"Full closed" = "red light off, green light on"~~
  - b. ~~Manual valves~~
    - 1) ~~"Full open" = "you feel resistance in the counter-clockwise direction"~~
    - 2) ~~"Full closed" = "you feel resistance in the clockwise direction"~~
2. ~~The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.~~
3. ~~Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.~~
4. ~~Obtain Shift Management's permission before opening any control panel door or instrument cover.~~
5. ~~It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.~~
6. ~~Consideration of electrical safety must be made during the performance of certain tasks involving electrical circuits and circuit breakers. The performer should be aware that working on or near energized equipment requires, at a minimum, wearing 100% cotton clothing and low voltage (Class 0) gloves while removing or securing shock hazards such as chains, jewelry, watches and metal framed eyeglasses. Operating or racking circuit breakers may require additional PPE. Details can be found in Att. 2 of the Electrical Safety Rulebook and General Operating procedure 04-S-04-2 (Operation of Electrical Circuit Breakers)~~

**~~Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.~~**

**A&E Task 41: Determine Protective Action Recommendations and Radiological Considerations for On-Site Personnel Determine Administration of Potassium Iodide**

Setting: Classroom  
Type: SRO  
Task: SRO A& E-041  
K&A: Generic 2.3.8; 3.2; [2.4.44; 4.0; 2.4.36; 2.8; 2.4.29; 4.0; 2.4.40; 4.0](#)  
Safety Function: Administrative  
Time Required: 15 minutes  
Time Critical: No  
Faulted: No  
Performance: Perform  
Reference(s): EPP 10-S-01-20 section 6.0; 10-S-01-12 sections 6.2.1, 6.2.2, & 6.2.4; 10-S-01-1 section 6.1.4k; [EPP Form 20-02](#)  
Handout(s): EPP 10-S-01-20; 10-S-01-12; 10-S-01-1; [EPP Form 20-02](#)  
# Manipulations: N/A  
# Critical Steps: [3](#)  
Group #: N/A

Simulator Setup/Required Plant Conditions: None.

Safety Concerns: None.

Equipment Needed: None.



Initial Condition(s):-

~~● Weather conditions prevent the manning of the Emergency Response Organization.~~

- ~~● An Anticipated Transient Without Scram (ATWS) has occurred.~~
- ~~● Plant power is still 20%.~~
- ~~● Chemistry has determined fuel cladding failure has occurred.~~
- ~~● Due to problems with Containment piping an unfiltered, uncontrolled release is in progress.~~
- ~~● Severe Accident Procedures 3 is being implemented.~~
- ~~● A General Emergency has been declared due to EAL 18.4.1 Discretionary.~~
- ~~● The On-Shift Chemist has performed Dose Calculations and projected the following exposures:~~

~~● Site Boundary~~  
~~2.5 Rem TEDE~~  
~~6.5 Rem CDE [Thyroid](#)~~

~~● 5 Miles from the plant~~  
~~800 mRem TEDE~~  
~~3.5 Rem CDE [Thyroid](#)~~

~~● On-Site Emergency Repair Teams being sent into the Auxiliary Building for Emergency Procedure Attachment implementation and repairs.~~

~~[The Teams will be wearing single PCs WITHOUT Self Contained Breathing Apparatus \(SCBA\) due to the accessibility of the areas for the work](#)~~

~~⋮~~  
~~———— The Teams are projected to receive 15 Rem TEDE dose and 260 Rem CDE [Thyroid](#) dose based on the estimated time of exposure and the known conditions in the plant. Radiation Protection Personnel have NOT factored in any UNKNOWN conditions or exposures.~~

Initiating Cue(s):-

~~● You are the Emergency Director.~~

~~● Determine the Protective Action Recommendations for State and Local Agencies and radiological considerations for On-Site personnel protection.~~

## **A&E Task 41: Determine Protective Action Recommendations and Radiological Considerations for On-Site Personnel Determine Administration of Potassium Iodide**

### **Notes**

1. This is an Administrative Job Performance Measure.

**Task Overview:** This task is to determine based on plant conditions during an emergency the recommendations for protective measures for offsite persons and emergency response personnel. This will involve understanding of radiological conditions and applying the Emergency Plan Procedures to the situation and determining protective actions.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

- ☐\* *Using 10-S-01-1 section 6.1.4k OR 10-S-01-12 section 6.2, make a Protective Action Recommendation for the State and Local Agencies based on radiological conditions.*

**Standard:** Candidate uses references to determine the STANDARD PAR is applicable with an additional recommendation of KI PAR.

**Cue:** None

**Notes:**

Based on the 5 mile Dose Projections the applicable PAR is the *\*Standard PAR* of Evacuate 2 miles All Sectors and 5 miles Downwind Sectors and Shelter the remainder of the 10 mile Emergency Planning Zone. Additionally based on the Site Boundary CDE in excess of 5 Rem, the additional PAR of the *\*KI PAR*, the consideration of prophylactic use of Potassium Iodide (KI) in accordance with State Plans should be recommended.

The Candidate may use either procedure to make the determination.

Dose projections at 5 miles are less than those to escalate to the Extended PAR and based on distance the projections at 10 miles are definitely less than the Ad hoc PAR. However, section 6.2.4d(1) states, "The KI PAR if indicated, is recommended in addition to Standard, Extended, or Ad hoc PAR."

☐\* ~~Using 10-S-01-20 section 6.1 and / or EPP 20-02, make determination of the applicability of authorization to issue Potassium Iodide to site personnel based on projected dose to the Emergency Response Teams. Locate the Relay Tabulation Print. E-1181-063.~~

~~Standard: Candidate uses references to determine that the issuance of Potassium Iodide to Emergency Response Teams is authorized and authorizes its administration.~~

~~Cue: None.~~

~~Notes: Based on the estimated CDE dose to Emergency Response Teams of 26 Rem with no use of Self Contained Breathing Apparatus (SCBA) factored in section 6.1.2 states, "KI should be issued when thyroid CDE is estimated to be 25 Rem or greater, as recommended in Ref. 3.1 section 2."~~

~~And 6.1.4 states, "During an emergency situation where radioiodine uptake by the thyroid is a reasonable possibility, Potassium Iodide may be administered to Emergency Response Personnel at the discretion and upon approval of the Emergency Director/Offsite Emergency Coordinator."~~

~~Based on conditions and sections 6.1.2 and 6.1.4 of 10-S-01-20, administration of Potassium Iodide to Emergency Response Personnel is authorized.\*~~

~~May use EPP 20-02 flowchart to make the determination based on conditions.~~

~~Actual taking of Potassium Iodide by personnel is still voluntary once authorized.~~

☐\* ~~Identify which print relay E12-K93A is located on. (E-1181-067 GE sheet 6)~~

~~Cue: None.~~

☐\* ~~Identify the other components affected by K93 in a de-energized state.~~

~~☐\*~~

~~Cue: None~~

☐\* ~~Place the control panel AUTO/TEST Toggle switch to the ON position.~~

~~Cue: Handswitch is in the ON position.~~

☐ ~~At Division ( ) section of 1H13-P864 panel, perform the following:~~

~~Main Control Room 166' elevation.~~

☐\* ~~Place DIV ( ) LSS-PNL TEST MODE SEL handswitch to the OFF position.~~

~~Cue: Handswitch is in the OFF position.~~

☐\* ~~Depress the LSS System DIV ( ) PNL RESET pushbutton.~~

~~Cue: Pushbutton depressed.~~



☐ ——— Observe the following on H13-P864:

——— ☐ Annunciator DIV (—) LSS PNL IN TEST MODE clear.

——— **Cue: Clear**

——— ☐ Annunciator DIV (—) LSS SYS FAIL clear.

——— **Cue: Clear**

——— ☐ DIV (—) LSS PNL RESET pushbutton white light comes on.

——— **Cue: White light on.**

——— ☐ DIV (—) LSS PNL IN TEST MODE SEL amber light is off.

——— **Cue: Amber light off.**

☐ ——— At the Division (—) LSS panel 1H22-P331(P332) observe the following:

——— Area 25 111' elevation.

——— ☐ ESF POWER ON light is illuminated.

——— **Cue: Light is on.**

——— ☐ BOP POWER ON light is illuminated.

——— **Cue: Light is on.**

**Refer to Tech Specs 3.8.1 and 3.8.2.**

——— **Cue: The Shift Supervisor will review Tech Specs.**

Task Standard(s):

Based on the 5 mile Dose Projections the applicable PAR is the *\*Standard PAR* of Evacuate 2 miles All Sectors and 5 miles Downwind Sectors and Shelter the remainder of the 10 mile Emergency Planning Zone. Additionally based on the Site Boundary CDE in excess of 5 Rem, the additional PAR of the *\*KI PAR*, the consideration of prophylactic use of Potassium Iodide (KI) in accordance with State Plans should be recommended.

*\*Administration of Potassium Iodide to Emergency Response Personnel is authorized.*

LSS Division (—) is in Standby per the SOI.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**A&E Task 41: Determine Protective Action Recommendations and Radiological Considerations for On-Site Personnel**

### Follow-Up Questions & Answers:

[illegible]

~~Comments:~~

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are approximately 20 lines visible. The paper has a slightly aged or off-white appearance.

## **~~Determine Protective Action Recommendations and Radiological Considerations for On-Site Personnel~~**

**Give this page to the student**

### **Initial Condition(s):-**

~~• Weather conditions prevent the manning of the Emergency Response Organization.~~

- ~~• An Anticipated Transient Without Scram (ATWS) has occurred.~~
- ~~• Plant power is still 20%.~~
- ~~• Chemistry has determined fuel cladding failure has occurred.~~
- ~~• Due to problems with Containment piping an unfiltered, uncontrolled release is in progress.~~
- ~~• Severe Accident Procedures 3 is being implemented.~~
- ~~• A General Emergency has been declared due to EAL 18.4.1 Discretionary.~~
- ~~• The On-Shift Chemist has performed Dose Calculations and projected the following exposures:~~

~~• Site Boundary~~  
~~2.5 Rem TEDE~~  
~~6.5 Rem CDE Thyroid~~

~~• 5 Miles from the plant~~  
~~800 mRem TEDE~~  
~~3.5 Rem CDE Thyroid~~

~~• On-Site Emergency Repair Teams being sent into the Auxiliary Building for Emergency Procedure Attachment implementation and repairs.~~

~~The Teams will be wearing single PCs WITHOUT Self-Contained Breathing Apparatus (SCBA) due to the accessibility of the areas for the work~~

~~The Teams are projected to receive 15 Rem TEDE dose and 26 Rem CDE Thyroid dose based on the estimated time of exposure and the known conditions in the plant. Radiation Protection Personnel have NOT factored in any UNKNOWN conditions or exposures.~~

### **Initiating Cue(s):-**

- ~~• You are the Emergency Director.~~
- ~~• Determine the Protective Action Recommendations for On-Site personnel, and State and Local Agencies.~~

~~Initial Condition(s):-~~

- ~~● Weather conditions prevent the manning of the Emergency Response Organization.~~
- ~~● An Anticipated Transient Without Scram (ATWS) has occurred.~~
- ~~● Plant power is still 20%.~~
- ~~● Chemistry has determined fuel cladding failure has occurred.~~
- ~~● Due to problems with Containment piping an unfiltered, uncontrolled release is in progress.~~
- ~~● Severe Accident Procedures 3 is being implemented.~~
- ~~● A General Emergency has been declared due to EAL 18.4.1 Discretionary.~~
- ~~● The On-Shift Chemist has performed Dose Calculations and projected the following exposures:~~
  - ~~● Site Boundary~~
    - ~~2.5 Rem TEDE~~
    - ~~6.5 Rem CDE~~
  - ~~● 5 Miles from the plant~~
    - ~~800 mRem TEDE~~
    - ~~3.5 Rem CDE~~
  - ~~● On-Site Emergency Repair Teams being sent into the Auxiliary Building for Emergency Procedure Attachment implementation and repairs.~~
    - ~~The Teams are projected to receive 15 Rem TEDE dose and 20 Rem CDE dose based on the estimated time of exposure and the known conditions in the plant. Radiation Protection Personnel have NOT factored in any UNKNOWN conditions or exposures.~~

Initiating Cue(s):-

- ~~● You are the Emergency Director. Determine the Protective Action Recommendations for State and Local Agencies and radiological considerations for On-Site personnel protection.~~

**~~Emergency Plan Procedures are available.~~**



TRAINING PROGRAM:

OPERATIONS TRAINING
---------------------

\*LESSON PLAN TITLE:

DETERMINE ENTRY INTO SITE EMERGENCY PLAN AND COMPLETE INITIAL NOTIFICATION FORMS
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DELETED


\* Indexing Information

## **Generic Instructions**

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**DELETED**

[illegible]

**A&E Task 42:     Determine Entry into Site Emergency  
Plan and Complete Initial Notification Forms**

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**A&E Task 42:     Determine Entry into Site Emergency  
Plan and Complete Initial Notification Forms**

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## **Determine Entry into Site Emergency Plan and Complete Initial Notification Forms**

**Give this page to the student**

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**TRAINING PROGRAM:**

OPERATIONS TRAINING
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**\*LESSON PLAN TITLE:**

PREPARE A TAGOUT USING eSOMS
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**APPROXIMATE TIME REQUIRED:** 30 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

New Material

Minor Revision

Major Revision

**REASON FOR REVISION:**

New JPM

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_ )

<b>Prepared By:</b>		
	Preparer	Date
<b>Reviewed By:</b>		
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>		
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>		
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>		
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet      ENS      ENN      Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information



## **Generic Instructions**

1. Standard cues for valve operation:
  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
    - 2) "Full closed" = "red light off, green light on"
  - b. Manual valves
    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
    - 2) "Full closed" = "you feel resistance in the clockwise direction"
2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
3. Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.
4. Obtain Shift Management's permission before opening any control panel door or instrument cover.
5. It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.
6. Consideration of electrical safety must be made during the performance of certain tasks involving electrical circuits and circuit breakers. The performer should be aware that working on or near energized equipment requires, at a minimum, wearing 100% cotton clothing and low voltage (Class 0) gloves while removing or securing shock hazards such as chains, jewelry, watches and metal-framed eyeglasses. Operating or racking circuit breakers may require additional PPE. Details can be found in Att. 2 of the Electrical Safety Rulebook and General Operating procedure 04-S-04-2 (Operation of Electrical Circuit Breakers)

**Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.**

### **ADMIN Task 3: Prepare a Tagout using eSOMS**

Setting: Classroom  
Type: RO  
Task: CRO-ADMIN-009; CRO-ADMIN-005  
K&A: Generic 2.2.13: 3.6/3.8  
Safety Function: N/A  
Time Required: 30 minutes  
Time Critical: No  
Faulted: No  
Performance: Simulate  
Reference(s): 02-S-01-38 Protective Tagging  
EN-OP-102 Protective and Caution Tagging;  
EN-OP-106 eSOMS Clearance Module Users Manual  
OPG – 15 OPS Department Equipment Tagout Process  
M-1053E & A  
M-1125B  
E-1148-001; 02; 05; 25  
SFD-1053  
SOI 04-1-01-N19-1  
SOI 04-1-01-P73-1  
Industrial Safety Rule book  
Handout(s): **Work Order Impact Statement**  
02-S-01-38 Protective Tagging  
EN-OP-102 Protective and Caution Tagging;  
EN-OP-106 eSOMS Clearance Module Users Manual  
OPG – 15 OPS Department Equipment Tagout Process  
M-1053E& A  
M-1125B  
E-1148-001; 02; 05; 25  
SOI 04-1-01-N19-1  
SOI 04-1-01-P73-1  
# Manipulations: N/A  
# Critical Steps: 35  
Group #: N/A

Simulator Setup/Required Plant Conditions: None.

Safety Concerns: None

Equipment Needed: Computer with eSOMS Clearance program for Training.

Initial Condition(s):

- The Plant is 100% power.
- Condensate Pump 'A' Expansion Joint XJG521 is leaking and requires replacement.

- Work is scheduled for the next shift to replace the expansion joint.

Initiating Cue(s):

- You are the Control Room Operator.
- Prepare a Tagout based on the given Work Order Impact statement.

Give the candidate the copy of the work impact and operational impact statements

## **ADMIN Task 3:** Prepare a Tagout using eSOMS

### **Notes**

1. This is an Administrative JPM.

**Task Overview:** This task is to prepare a tagout using the eSOMS Clearance Module given a Work Order Impact statement. This task involves research of the equipment required to isolate maintenance personnel from all hazards. This task involves the use of multiple procedures.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

- ☐ Review the Work Impact Statements, facility drawings, and procedures to determine the boundaries and items to be tagged and their protective positions.  
**Standard:** The candidate reviews the Work Impact Statements, facility drawings, and procedures to determine the boundaries and items to be tagged and their protective positions.  
**Cue:** None  
**Notes:**

□\* Determines the Clearance boundaries listed below:

COMPONENT POSITION	LOCATION	SEQ	
□* <u>Handswitch 1N19-HS-M602A</u>	H13-P680	1	<u>STOP</u>
□* <u>Handswitch 1N19-HS-M604A</u> <u>CLOSED</u>	H13-P680	2	
□* <u>Handswitch 1N19-HS-M001A</u> <u>AFTER CLOSE</u>	H22-P177	3	<u>STOP</u>
□* <u>Circuit breaker 152-1309</u> <u>RACKED OUT OPEN</u> Cond Pmp N19-C003A	Bus 13AD	4	
□* <u>Circuit breaker 52-132133</u> N19-F024A Cond Pmp Disch Isol	Bus 13B21	5	<u>OPEN</u>
□* <u>Circuit breaker 52-132127</u> N19-F016A Cond Pmp Suct Isol	Bus 13B21	5	<u>OPEN</u>
□ Circuit breaker 52-1P32132 (Open) N19-F024A Space Heater	Bus 13P21	5	OFF
□ Circuit breaker 52-1P32134 (Open) N19-F016A Space Heater	Bus 13P21	5	OFF
□ Circuit breaker 52-1P32114 (Open) N19-C003A Space Heater	Bus 13P21	5	OFF
□* <u>Valve Op N19-F024A</u> <u>CLOSED</u> Cond Pump 'A' Disch Isol	05 093'	6	
□* <u>Valve Op N19-F016A</u> <u>CLOSED</u> Cond Pump 'A' Suct Isol	05 093'	6	
□* <u>Valve Op N19-F018A</u> <u>CLOSED</u> Cond Pump 'A' Seal Purge	05 093'	6	
□* <u>Valve Op N19-F019A</u> <u>CLOSED</u> Cond Pump 'A' Disch Cont Vent	05 093'	6	
□* <u>Valve Op P73-F211</u> <u>CLOSED</u> Cond Pump 'A' O2 Sply Isol	05 093'	6	
□* <u>Valve Op P73-F222</u> <u>CLOSED</u> Cond Pump 'A' O2 Sply Isol	05 093'	6	

<input type="checkbox"/> *	<u>Valve Op N19-F020A</u>	05 093'	6
	<u>CLOSED</u>		
	Cond Pump 'A' Suct Cont Vent		

+	<input type="checkbox"/> * <u>Valve Op N19-F022A</u> <i>Cond Pump 'A' Suct Drain</i>	05 093'	7	<u>OPEN</u>
+	<input type="checkbox"/> * <u>Valve Op N19-F160A</u> <i>SU Str Drain</i>	05 093'	7	<u>OPEN</u>
	<input type="checkbox"/> * <u>Valve Op N19-F143A</u> <i>Cond Pump 'A' Disch Drain</i>	05 093'	7	<u>OPEN</u>
+	<input type="checkbox"/> * <u>Valve Op N19-F106A</u> <i>Cond Pump 'A' Suct Vent</i>	05 093'	8	<u>OPEN</u>
+	<input type="checkbox"/> * <u>Valve Op N19-F220A</u> <i>Cond Pump 'A' Suct STR Vent</i>	05 093'	8	<u>OPEN</u>
	<input type="checkbox"/> * <u>Valve Op N19-F108A</u> <i>Cond Pump 'A' Disch Vent</i>	05 093'	8	<u>OPEN</u>

**Standard:** The candidate determines the Clearance boundaries.

**Cue:** None

**Notes:** Control Room Handswitches and local handswitches tagged before the circuit breakers, Continuous vents and seal purge should be closed after the handswitches and breakers, drains should be opened before vents, local tags for suction and discharge valves may be hung at the same time as drains and vents (the suction and discharge are already closed).

Suction vs Discharge vents and drains order is NOT critical.

- + Must have at least one VENT and one DRAIN on the suction side of the pump.

If the others are NO TAGGED or not listed this is still acceptable.

MOV and Motor Space Heaters are optional for the work involved with this tagout since the motor covers should not be impacted.

Circuit breakers may all be included in the same section of the sequence this is acceptable.

If only one Oxygen supply valve is isolated this is acceptable.

Evaluator may ask the candidate the basis for their decisions.

## **Using eSOMS Clearance Module computer program**

### **DO NOT USE THE ACTUAL PLANT eSOMS CLEARANCE MODULE!**

- \* *Log on to the eSOMS Clearance Module.*

**Standard:** The candidate logs onto a network computer with the eSOMS Clearance Module.

**Cue:** If needed, cue the candidate to use the training program LOGON  
ID: ro, PASSWORD: ro

**Notes:**

- \* *Open Clearance Manager.*

**Standard:** The candidate opens Clearance Manager.

**Cue:** None

**Notes:**

- \* *Selects Active Clearances.*

**Standard:** The candidate selects Active Clearances.

**Cue:** None

**Notes:**

- \* *Selects clicks and selects create new Active Clearances.*

**Standard:** The candidate Right clicks and selects create new Active Clearances.

**Cue:** None

**Notes:**

- \* *Selects clearance number and system (N19).*

**Standard:** The candidate selects clearance number and system (N19).

**Cue:** None

**Notes:**

- \* *Selects Tagout Detail tab.*

**Standard:** The candidate selects Tagout Detail tab.

**Cue:** None

**Notes:**



- \* Fills in Component to be worked Expansion Joint XJG521 or Condensate Pump 'A' N19-C003A.

**Standard:** The candidate fills in Component to be worked Expansion Joint XJG521 or Condensate Pump 'A' N19-C003A.

**Cue:** None

**Notes:** Either component number is acceptable.

- \* Fills in Description of Work, Placement Instructions, Hazards.

**Standard:** The candidate fills in Description of Work, Placement Instructions, Hazards.

**Cue:** None

**Notes:** Restoration lineup is not required and if the candidate starts to work on restoration lineups cue the candidate that is NOT required for this evolution. When filling in the information there is no exact wording. There should be a note about electrical safety when operating circuit breakers. There should be a note about venting and draining piping. These are not failure criteria. The candidate may add words regarding hazards involving the Oxygen line to the suction of the Condensate Pump.

- \* Selects Tagout Tags tab.

**Standard:** The candidate selects Tagout Tags tab.

**Cue:** None

**Notes:**

- \* Selects components from Equipment Manager.

**Standard:** The candidate selects components from Equipment Manager.

**Cue:** None

**Notes:** Order of component selection is NOT critical.

- \* Selects Tag Type for each component.

**Standard:** The candidate selects Tag Type for each component.

**Cue:** None

**Notes:** Order of component selection is NOT critical.

- \* Selects Placement Sequence for each component.

**Standard:** The candidate selects Placement Sequence for each component.

**Cue:** None

**Notes:** The Component Sequence listed is a suggested sequence. If the candidate has a different sequence and can justify the sequence this is acceptable.

- ☐\* Selects Work Order tab.

**Standard:** The candidate selects Work Order tab.

**Cue:** None

**Notes:**

- ☐\* Enters Work Order Number identified on Impact Statement.

**Standard:** The candidate enters Work Order Number identified on Impact Statement.

**Cue:** None

**Notes:**

**Linking Documents are NOT required. Candidate may use this to document the prints and procedures used to develop the tagout.**

- ☐\* Selects Tagout Attributes tab.

**Standard:** The candidate selects Tagout Attributes tab.

**Cue:** None

**Notes:**

- ☐\* Selects Prepared line and enters self as preparer.

**Standard:** The candidate selects Prepared line and enters self as preparer.

**Cue:** None

**Notes:**

- ☐ Exits Clearance Module program.

**Standard:** The candidate exits Clearance Module Program.

**Cue:** None

**Notes:**

Task Standard(s):

Tagout for Condensate Pump 'A' Expansion Joint is developed.

NOTE: The Primary thrust of this JPM is to ensure the candidate can adequately determine a tagging boundary give a work description.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_

### **ADMIN Task 3:** Prepare a Tagout using eSOMS

Follow-Up Questions & Answers:

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Comments:

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## Prepare a Tagout using eSOMS

**Give this page to the student**

### Initial Condition(s):

- The Plant is 100% power.
- Condensate Pump 'A' Expansion Joint XJG521 is leaking and requires replacement.
- Work is scheduled for the next shift to replace the expansion joint.

### Initiating Cue(s):

- You are the Control Room Operator.
- Prepare a Tagout based on the given Work Order Impact statement.

Give the candidate the copy of the work impact and operational impact statements

**TRAINING PROGRAM:****OPERATIONS TRAINING****\*LESSON PLAN TITLE:****ENTRY AND EGRESS FROM THE CONTROLLED ACCESS AREA (CAA) WITH ENTRY REQUIREMENTS FOR ACCESSING A HIGH RADIATION AREA**

**APPROXIMATE TIME REQUIRED:** N/A Time may vary based on time spent inside CAA performing other JPMs.

**PREREQUISITES:** NONE

**SUPPORTING LESSONS:** NONE

New Material      Minor Revision      Major Revision

**REASON FOR REVISION:**

Update JPM to New Format for NRC exam. This JPM replaces NRC 5/2000 JPM GG-1-JPM-OP-ADM26.00 RO Rad Con Administrative JPM.

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>	_____	_____
	Preparer	Date
<b>Reviewed By:</b>	_____	_____
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>	_____	_____
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>	_____	_____
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>	_____	_____
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet	ENS	ENN	Not Applicable
ANO			PNPS
CNPS			RBS
ECH			VY
GGNS			WF3
IPEC			WPO
JAF			

\* Indexing Information

## **Generic Instructions**

1. Standard cues for valve operation:
  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
    - 2) "Full closed" = "red light off, green light on"
  - b. Manual valves
    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
    - 2) "Full closed" = "you feel resistance in the clockwise direction"
2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
3. Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.
4. Obtain Shift Management's permission before opening any control panel door or instrument cover.
5. It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.
6. Consideration of electrical safety must be made during the performance of certain tasks involving electrical circuits and circuit breakers. The performer should be aware that working on or near energized equipment requires, at a minimum, wearing 100% cotton clothing and low voltage (Class 0) gloves while removing or securing shock hazards such as chains, jewelry, watches and metal-framed eyeglasses. Operating or racking circuit breakers may require additional PPE. Details can be found in Att. 2 of the Electrical Safety Rulebook and General Operating procedure 04-S-04-2 (Operation of Electrical Circuit Breakers)

**Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.**

## **ADM Task 26: Entry and Egress from the CAA with Entry Requirements for Accessing a High Radiation Area**

<u>Setting:</u>	Plant (Inside CAA)
<u>Type:</u>	NLO
<u>Task:</u>	AON-ADMIN-022; AON-ADMIN-025
<u>K&amp;A:</u>	Generic 2.3.1: 2.6/3.0; 2.3.2: 2.5/2.9; 2.3.4: 2.5/3.1; 2.3.5: 2.3/2.5
<u>Safety Function:</u>	ADMINISTRATIVE
<u>Time Required:</u>	Variable
<u>Time Critical:</u>	No
<u>Faulted:</u>	No
<u>Performance:</u>	Perform
<u>Reference(s):</u>	Administrative Procedure 01-S-08-2; NMM ENS-RP-103; ENS-RP-105; RWP2005-1002 & 1005
<u>Handout(s):</u>	None
<u># Manipulations:</u>	N/A
<u># Critical Steps:</u>	8
<u>Group #:</u>	N/A

### Simulator Setup/Required Plant Conditions:

- 1 None
- 2 This JPM may be performed during any plant conditions.

### Safety Concerns:

- 3 The Evaluator may confer with the Radiation Protection Personnel to assure them the entry into a High Radiation area is for examining purposes only. NO actual entry into High Radiation Areas is intended.

### Equipment Needed:

1. Thermoluminescent Dosimeter
2. Electronic Alarming Dosimeter
3. Key Card
4. Hard Hat
5. Safety Glasses
6. Ear Plugs
7. Gloves

**Give the Candidate instructions for this JPM prior to entering the Control Building.**

Note to the Evaluator: Explain to the candidate that you will be observing and grading the radiological practices performed by the candidate during the entry, activities inside the Controlled Access Area (CAA), and exit of the CAA. Inform the candidate part of the entry will require **entry into the Residual Heat Removal 'A' Pump Room.**

**The reason for entry into the RHR 'A' Pump Room is to inspect the RHR 'A' Jockey Pump due to a report of a strange noise coming from the pump.**



## **ADM Task 26: Entry and Egress from the CAA with Entry Requirements for Accessing a High Radiation Area**

### **Notes**

1. This is an Administrative JPM.
2. This JPM is tagged as a Non-Licensed Operator JPM, due to the requirements for any station personnel to enter the Controlled Access area are the same.
3. During the performance of this JPM, the candidate will be required to confer with the Radiation Protection Personnel at the 93' RP Lab.
4. **This JPM will be performed in conjunction with other JPMs performed inside the CAA.**

**Task Overview:** This task is to enter the Controlled Access Area and observe applicable radiation control practices for operators while in the Power Block and exit the Controlled Access Area performing the appropriate actions to prevent the spread of radioactive contaminants outside controlled areas. Prior to entry into the CAA, the candidate will be informed entry will require access to an area designated as a High Radiation Area. This requires the candidate to discuss the entry with Radiation Protection Personnel per the access requirements.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

- \* *Wears Hard Hat, Safety Glasses, and Ear Plugs inside the CAA as required.*  
**Standard:** Candidate wears required PPE inside the Power Block portion of the CAA.  
**Cue:**  
**Notes:** Ear plugs are only required to be worn in areas posted as Hearing Protection Required. There should not be any activities requiring the use of gloves.

- \* Discusses with the desk RP Technician the entry into the RHR 'A' Pump Room and the High Radiation Area Entry briefing.

**Standard:** Candidate discusses with the desk RP Technician the entry into the RHR 'A' Pump Room and the High Radiation Area Entry briefing.

**Cue:**

**Notes:** The Evaluator may be required to discuss the entry in private with the Radiation Protection personnel that this is only a test and the operator will NOT be entering the RHR 'A' Pump Room.

**We will not be entering the RHR 'A' Pump Room for ALARA considerations.**

- \* Obtain Electronic Alarming Dosimeter (EAD) from the RP Lab and activate at the access turnstile using the appropriate Radiation Work Permit (RWP) Number and enters the CAA when access is granted.

**Standard:** Candidate obtains an EAD from the RP Lab and activates it at the access turnstile using the RWP number and enters CAA.

**Cue:**

**Notes:** Operations RWP is 2005-1002 and the Evaluator should be using RWP 2005-1005 for general tours and inspections.

To activate the EAD the candidate will press the LOG IN box on the touch screen and scan the bar code on their TLD. Then they will follow the on screen prompts.

**USE of PAPER SUITS is RECOMMENDED to reduce the possibility of RADON GAS contamination and delaying the exiting of the CAA.**

- \* While in the CAA, the candidate observes and adheres to ALL applicable postings and entry requirements.

**Standard:** Candidate observes and adheres to ALL applicable postings and entry requirements.

**Cue:**

**Notes:** None of the areas for the JPMs should include access to High Radiation Areas or Contamination Areas.

- ☐\* Exiting the CAA the candidate will place hand carried items in the Tool Contamination Monitor and allow it to count and clear once the items have cleared the monitor they will be placed on the clean table.

**Standard:** Candidate counts hand carried items in the Tool Contamination Monitor and removes the items when cleared to the clean table at the exit of the CAA.

**Cue:**

**Notes:** RP may be required to perform this task. If this is the RP requirement this task is NO longer critical.

**If items are found to be contaminated they will require RP assistance to clear.**

- ☐\* Candidate enters the PCM-2 monitor and follows the prompts and clears the PCM2.

**Standard:** Candidate enters the PCM-2 monitor and follows the prompts and clears the PCM-2.

**Cue:**

**Notes:** If radon is present on the paper suits they may be removed and left at RP. Once cleared, they will either dispose of them or reuse them. This is normal.

- ☐\* After clearing the PCM-2 the candidate will retrieve hand carried items and exit through the Portal Monitor.

**Standard:** After clearing PCM-2, Candidate will retrieve hand carried items and exit through the Portal Monitor.

**Cue:**

**Notes:**

- ☐\* Log Out of the access computer.

**Standard:** Candidate logs out of the access computer.

**Cue:**

**Notes:** This action reads the EAD and turns the EAD off logging the person out of the CAA.

Task Standard(s):

Entry and exit of the CAA is completed.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_

## **ADM Task 26:    Entry and Egress from the CAA with Entry Requirements for Accessing a High Radiation Area**

Follow-Up Questions & Answers:

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Comments:

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## **Entry and Egress from the CAA with Entry Requirements for Accessing a High Radiation Area**

**Give this page to the student**

Part of the entry will require entry into the Residual Heat  
Removal 'A' Pump Room which is a High Radiation Area.

**The reason for entry into the RHR 'A' Pump Room is to  
inspect the RHR 'A' Jockey Pump due to a report of a  
strange noise coming from the pump.**

Take the appropriate actions necessary for this entry.

**TRAINING PROGRAM:**

OPERATIONS TRAINING
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**\*LESSON PLAN TITLE:**

COMPLETE DOCUMENTATION FOR SHIFT TURNOVER
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**APPROXIMATE TIME REQUIRED:** 10 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

☐ New Material     
 ☐ Minor Revision     
 ☐ Major Revision

**REASON FOR REVISION:**

Update JPM to New Format for NRC exam. This JPM replaces NRC 3/1998 JPM GG-1-JPM-RO-ADM30.00

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>		
	Preparer	Date
<b>Reviewed By:</b>		
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>		
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>		
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>		
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet      ENS      ENN      Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

1. Standard cues for valve operation:
  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
    - 2) "Full closed" = "red light off, green light on"
  - b. Manual valves
    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
    - 2) "Full closed" = "you feel resistance in the clockwise direction"
2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
3. Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.
4. Obtain Shift Management's permission before opening any control panel door or instrument cover.
5. It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.
6. Consideration of electrical safety must be made during the performance of certain tasks involving electrical circuits and circuit breakers. The performer should be aware that working on or near energized equipment requires, at a minimum, wearing 100% cotton clothing and low voltage (Class 0) gloves while removing or securing shock hazards such as chains, jewelry, watches and metal-framed eyeglasses. Operating or racking circuit breakers may require additional PPE. Details can be found in Att. 2 of the Electrical Safety Rulebook and General Operating procedure 04-S-04-2 (Operation of Electrical Circuit Breakers)

**Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.**

## **ADM Task 2:        Complete Documentation for Shift Turnover**

Setting: Simulator  
Type: RO  
Task: CRO-ADMIN-003  
K&A: Generic 2.1.3: 3.0/3.4; 2.1.2; 3.0/4.0  
Safety Function: ADMINISTRATIVE  
Time Required: 10 minutes  
Time Critical: No  
Faulted: No  
Performance: Perform  
Reference(s): Operations Section Instruction 02-S-01-4 section 6.4.3 & Attachment IA  
Handout(s): Operations Section Instruction 02-S-01-4 Attachment IA  
# Manipulations: N/A  
# Critical Steps: 1  
Group #: N/A

### Simulator Setup/Required Plant Conditions:

- 1 IC-19
- 2 Transfer all loads to Service Transformer 11 and ESF 12 Transformer for 16AB.
- 3 Place the following Equipment Out of Service:
  - ESF Transformer 21
  - BOP Transformer 12A
  - BOP Transformer 12B
  - High Pressure Core Spray.

Safety Concerns: None

Equipment Needed: None



Initial Condition(s):

- The plant is operating at 100 % Power.
- Recirc Pumps are operating in Fast Speed.
- 34.5 KV outdoor bus 13R is out of service.
- ESF Transformer 21, BOP Transformer 12A and BOP Transformer 12B are out of service for Entergy Mississippi work.
- High Pressure Core Spray is out of service for Mechanical Maintenance repairs since 8/15/2005 0630.

Initiating Cue(s):

- You are the Day Shift Control Room Operator.
- The computer program for Shift Turnover Checksheets is out of service.
- Complete the Shift Turnover Checksheet for present plant conditions. (Use Current Time & Date.)

After the candidate has located the procedure. **Provide the Candidate with a copy of 02-S-01-4.**

## **ADM Task 2:      Complete Documentation for Shift Turnover**

### **Notes**

1. Completion of the form is NOT sequence critical.

**Task Overview:** This task is to complete the documentation checksheets for Shift Turnover per 02-S-01-4, Shift Relief and Turnover.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

- ☐\*      *Complete 02-S-01-4 Attachment IA.*  
**Standard:** Candidate completes 02-S-01-4 Attachment IA or similar.  
**Cue:**  
**Notes:** Items NOT required are denoted. Numbers may be approximate if they are consistent with simulator conditions. Candidate may use board indications, PDS Computer, and/or Cyclops computer. Any or all of these are acceptable.
- Service Transformer 21, High Pressure Core Spray, and Recirc Loop 'B' are out of service. These items and the rearrangement of ESF bus power supplies should be noted.**

A copy of the completed form is provided for the evaluator.

Task Standard(s):

02-S-01-4 Attachment IA is completed.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_

## **ADM Task 2:      Complete Documentation for Shift Turnover**

Follow-Up Questions & Answers:

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Comments:

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# **Complete Documentation for Shift Turnover**

**Give this page to the student**

## Initial Condition(s):

- The plant is operating at 100 % Power.
- Recirc Pumps are operating in Fast Speed.
- 34.5 KV outdoor bus 13R is out of service.
- ESF Transformer 21. BOP Transformer 12A and BOP Transformer 12B are out of service for Entergy Mississippi work.
- High Pressure Core Spray is out of service for Mechanical Maintenance repairs since 8/15/2005 0630.

## Initiating Cue(s):

- You are the Day Shift Control Room Operator.
- The computer program for Shift Turnover Checksheets is out of service.
- Complete the Shift Turnover Checksheet for present plant conditions. (Use Current Time & Date.)


**CLEARANCE****CLEARANCE INSTALLATION FORM**

<b>COMPONENT TO BE TAGGED:</b> 1N23C001A HEATER DRAIN PUMP 'A'		<b>PUMP</b>	<b>CLEARANCE NUMBER: GG-05-xx</b>		
<b>PURPOSE OF CLEARANCE:</b> Replace pump seals on Heater Drain Pump 'A'.			<b>DESIRE</b>		
<b>SPECIAL INSTRUCTIONS:</b>			<b>DRAW XREF: M1055C; E1142-05, 06, 11, 19</b>		
<b>IMPACT: PUMP SEAL WILL BE REPLACED BREACHING THE INTERNALS OF PUMP WHERE HIGH PRESSURE FLUID IS PRESENT. PUMP IS NEEDED TO SUPPORT FULL POWER OPERATION AND M EFFICIENCY.</b> USE APPROPRIATE ELECTRICAL SAFETY GEAR WHEN RACKING OUT BREAKERS REMOVE CAP AND CONNECT VENT HOSE TO N23-FX528 AND ROUTE TO DRAIN.					
<b>PREPARED BY: M. RASCH</b> 1200		<b>DATE/TIME: 8/15/05</b>	<b>REVIEWED BY: S. HUMPHRIES</b>		
<b>AUTHORIZED (SS):</b>		<b>DATE/TIME:</b>	<b>AUTHORIZED (PS):</b>		
<b>CLEARANCE TAG INSTALLATION SECTION CLEARANCE</b>					
SEQ	TAG #	DEVICE AND COMPONENT NAME	LOCATION	TAGGED POSITION	
1	1	1N23M605A IBISSW	CON-25A-166 1H13P680	STOP	
		HTR DR PMP A 1N23C001A HANDSWITCH			
2	2	1N23M619A IBISSW	CON 25A-166 1H13P680	CLOSED	
		HTR DR PMP A DISCH VLV N23-F051A HANDSWITCH			
3	3	152-1310 CKTBRK	TURB 04-133 13AD	OPEN RACKED OUT OR BKR REMOVED	
		HTR DR PMP A 1N23C001A CKT BRK			
4	4	1N23M018A IBISSW	TURB 06-133 1H22P175	NORM AFTER CLOSED	
		HTR DR PMP A SUCT VLV N23-F049A HANDSWITCH			
4	5	1N23M096A IBISSW	TURB 06-133 1H22P175	NORM AFTER CLOSED	
		HTR DR PMP A VENT VLV N23-F045A HANDSWITCH			
5	6	52-112107 CKTBRK	TURB 05-113 11B21	OPEN	
		HTR DR PMP C001A SUCT MOV N23-F049A CKT BRK			

☒ CONTINUATION SHEET

<b>CLEARANCE GG-05-XXXX1 TAG INSTALLATION SECTION CLEARANCE GO</b>					
SEQ	TAG #	DEVICE AND COMPONENT NAME	LOCATION	TAGGED POSITION	
5	7	52-112103 CKTBRK	TURB 05-113 11B21	OPEN	
		HTR DR PMP C001A DISCH MOV N23-F051A CKT BRK			
5	8	52-1P12130 CKTBRK	TURB 05-113 11P21	OPEN	
		MOV HEATERS VERTICAL SECTION C CKT BRK (N23-F049A & F051A)			
5	9	52-1P12108 CKTBRK	TURB 05-113 11P21	OPEN	
		SPACE HTR COO1A CKT BRK (N23-C001A)			
5	10	1N23F26 FUSE	TURB 06-133 1H22P175	REMOVED	
		FUSE FOR SV N23-F596A PILOT VALVE FOR N23-F045A			

		A HTR DRN PMP MTR BRG CLR OUTL ISOL VALVE			
12	21	1P43-F188A VALVE	TURB 05-093	CLOSED	
		A HTR DRN PMP SEAL CLR OUTL ISOL VALVE			
12	22	1P43-F189A VALVE	TURB 05-093	CLOSED	
		A HTR DRN PMP BRG CLR OUTL ISOL VALVE			
13	23	1P43-F160A VALVE	TURB 05-093	CLOSED	
		A HTR DRN PMP SPLY HDR ISOL VALVE			

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		INFORMATIONAL	U SE <input type="checkbox"/> PAGE 24 OF	

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☐ ☐ ☐ ATTACHMENT

9.2IMPACT TEMPL

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PLANNER

DATE

REVIEWER

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TEWORK SCO

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E: ☐ Remove and replace the pump seals of Heater Drain Pump 'A' due to excessive leak b  
y. Repair/resurface seal surfaces as necessary due to dama

g

e. COMPONENT MODE: ( ) INSV (X) OOSV ( ) AVAILA

B

LE PLANT MODES & CONDITIO

N

S: Plant may be in any condition. Preferred is plant in cold shutdown. Heater Drain Pump 'A' m  
ust be secured and isolated on the process side. Vent and drain the pump suction and discha  
rge pipi

n

g. EFFECTS ON ASSOCIATED SYSTEM AND COMPONEN

T

S: ☐ Heater Drain System will be at half capacity for the pumping forward mode causing excess dr  
ain water from Heater Drain tank to be routed to the Main Condenser reducing overall plant ther  
mal efficien

cy. ☐ Suction pressures to the suction of the Reactor Feed Pumps will be reduced but overall the pl  
ant can achieve 100% pow

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r. PRE-MAINTENANCE ACTIVITI

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S: ☐ N

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ne POST-MAINTENANCE ACTIVITI

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S: ☐ N

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n

e DOES THE ACTIVITY HAVE THE POTENTIAL TO SCRAM/TRIP THE PLANT: ( ) YES (X)


NO SECURITY/FIRE/CONTROL ROOM ENVELOPE BARRIER BREACH: ( ) YES (X)

NO RPS AFFECTED: ( ) YES (X)

NO ESF/EFSAS AFFECTED: ( ) YES (X)

NO ALARMS/COMPUTER POINTS AFFECTED (IF YES, LIST ON ATTACHED SHEET) ( ) YES (X)

N

	<input type="checkbox"/> <input type="checkbox"/>	QUALITY RELATED	EN-WM-105	<input type="checkbox"/> REV.0
		INFORMATIONAL	U SE <input type="checkbox"/> PAGE 25 OF	

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<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> ATTACHMENT	9.3 OPERATIONAL IMPACT TEMPL
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E ☐ Sheet 1 of

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1 OPERATIONAL IMP

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TECHNICAL SPECIFICATION

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NE LIMITING CONDITIONS FOR OPERATION

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NE REACTIVITY IMPACT (REQUIRED)

D

): ☐ Securing a single Heater Drain Pump at full power will require power reduction below 95% and result in reduced Pump forward flow of the Heater Drain System resulting in a slight reduction of Feedwater inlet temperature to the reactor that will result in a small rise in core thermal power. With a slightly reduced Feedwater inlet temperature the plant will be operating closer to thermal limits and should be monitored.

d

POTENTIAL SYSTEM/COMPONENT EFFECT

T

S: ☐ Securing a single Heater Drain Pump at <95% power is within the design of the systems. This will result in a reduced suction pressure to the Reactor Feed Pumps and reduced steam output for the same amount of reactor fuel thermal output. This results in an overall reduction in thermal cycle efficiency.

n

cy ACTUAL OR POTENTIAL MEASURE OR CONTINGENCY ACTION REQUIRED

E

D: ☐ If second Heater Drain Pump or any Condensate or Condensate Booster Pumps are lost, reactor power should be reduced to within the capabilities of Condensate and Feedwater System operations. Entry into the Reduction of Feedwater Heating and Loss of Feedwater Flow ON EPs may be required.



**TRAINING PROGRAM:**

OPERATIONS TRAINING
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**\*LESSON PLAN TITLE:**

MANUALLY INITIATE FIRE PROTECTION TO SSGT FILTER TRAIN
--

**APPROXIMATE TIME REQUIRED:** 15 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

New Material

Minor Revision

Major Revision

**REASON FOR REVISION:**

New JPM

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>		
	Preparer	Date
<b>Reviewed By:</b>		
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>		
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>		
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>		
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet      ENS      ENN      Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

1. Standard cues for valve operation:
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    - 1) "Full open" = "red light on, green light off"
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**Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.**

## **P64 Task 1:      **Manually Initiate Fire Protection to SBT Filter Train with the Train operating****

Setting: Plant (Inside CAA)  
Type: NLO  
Task: AON-P64-001; NOB-R20-002  
K&A: 286000 2.1.29: 3.4/3.3; 2.1.30: 3.9/3.4; 2.4.26: 2.9/3.3  
600000 AA1.08: 2.6/2.9  
Safety Function: Plant Systems (8)  
Time Required: 15 minutes  
Time Critical: No  
Faulted: No  
Performance: Simulate  
Reference(s): ARI 04-1-02-1H13-P870-2A-B2  
Handout(s): ARI 04-1-02-1H13-P870-2A-B2  
# Manipulations: 3  
# Critical Steps: 3  
Group #: 2

### Simulator Setup/Required Plant Conditions:

- 1 Area is accessible

### Safety Concerns:

- 2 Do NOT operate plant equipment.
- 3 DO NOT ALLOW CANDIDATE TO OPEN THE PULL STATION.
- 4 This JPM may be performed on the alternate Division 2 train Standby Gas Treatment B if protected train is a concern. This is acceptable.

Equipment Needed: None.

Initial Condition(s):

- Both Standby Gas Treatment Filter Trains are operating in response to a high radiation signal.
- Annunciator H13-P870 2A-B2 SGTS FLTR TR A CHAR TEMP HI-HI and C2 SGTS FLTR TR A CHAR TEMP HI have been received.
- Personnel in the area of the Standby Gas Trains and Security have reported smoke.

Initiating Cue(s):

- You have been directed to perform the Immediate Operator Actions from the Alarm Response Instruction for H13-P870 2A-B2 SGTS FLTR TR A CHAR TEMP HI-HI.
- The Control Room Operator has NOT been able to secure the Standby Gas Filter Train.

**GIVE THE CANDIDATE A COPY OF THE ALARM RESPONSE INSTRUCTION.**

## **P64 Task 1:     Manually Initiate Fire Protection to SBTG Filter Train with the Train operating**

### **Notes**

1. Candidate may feel the need to don Fire Turnout Gear. Cue the candidate to simulate this action.
2. This JPM may be performed on SBTG 'B' if protected train is a concern. MCC for SBTG 'B' is 16B11 located in the Switchgear Room area 10 119 Ft.

**Task Overview:** This task is to manually secure an operating Standby Gas Filter Train Fan and manually initiate the Fire Suppression System for the filter train charcoal adsorber locally. This is done to extinguish the fire and limit the release of radioactive particulate to the environment by containing it inside the confines of the SBTG Filter Train.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

- ☐     Locate MCC 15B11.  
**Standard:** Candidate locates MCC.  
**Cue:** None.  
**Notes:** Area 9 119' elevation
  
- ☐\*     *Open breaker 52-151117 on MCC 15B11.*  
**Standard:** Candidate opens breaker 52-151117.  
**Cue:** Breaker is open.  
**Notes:**
  
- ☐\*     *Open manual isolation valve SP64-F167A.*  
**Standard:** Candidate opens SP64-F167A.  
**Cue:** You feel resistance in the counter clockwise direction.
  
- ☐\*     *Trip deluge valve SP64-F477L.*  
**Standard:** Candidate trips the deluge valve SP64-F477L.  
**Cue:** Valve is tripped. If asked, you hear water flow.  
**Notes:** **DO NOT ALLOW CANDIDATE TO OPEN THE PULL**

**STATION.**

Task Standard(s):

Fire suppression system for Standby Gas Filter Train A is actuated.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_

**P64 Task 1:     Manually Initiate Fire Protection to SBGT  
Filter Train with the Train operating**

Follow-Up Questions & Answers:

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Comments:

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# **Manually Initiate Fire Protection to SBGT Filter Train with the Train operating**

**Give this page to the student**

## **Initial Condition(s):**

- Both Standby Gas Treatment Filter Trains are operating in response to a high radiation signal.
- Annunciator H13-P870 2A-B2 SGTS FLTR TR A CHAR TEMP HI-HI and C2 SGTS FLTR TR A CHAR TEMP HI have been received.
- Personnel in the area of the Standby Gas Trains and Security have reported smoke.

## **Initiating Cue(s):**

- You have been directed to perform the Immediate Operator Actions from the Alarm Response Instruction for **H13-P870 2A-B2** SGTS FLTR TR A CHAR TEMP HI-HI.
- The Control Room Operator has NOT been able to secure the Standby Gas Filter Train.



**TRAINING PROGRAM:****OPERATIONS TRAINING****\*LESSON PLAN TITLE:****SECURE CONTROL ROOM STANDBY FRESH AIR UNIT****APPROXIMATE TIME REQUIRED:** 10 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

New Material      Minor Revision      Major Revision

**REASON FOR REVISION:**

Revise JPM to New format and update for NRC Exams. JPM was used for 2004 Audit Examination.

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_ )

<b>Prepared By:</b>	_____	_____
	Preparer	Date
<b>Reviewed By:</b>	_____	_____
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>	_____	_____
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>	_____	_____
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>	_____	_____
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet      ENS      ENN      Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

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  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
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  - b. Manual valves
    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
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2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
3. Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.
4. Obtain Shift Management's permission before opening any control panel door or instrument cover.
5. It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.
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**Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.**

## **Z51 Task 1:      Secure Control Room Standby Fresh Air Unit**

Setting: Control Room  
Type: RO  
Task: CRO-Z51-001  
K&A: 290003 A4.01: 3.2/3.2; A4.02: 2.8/2.8; A4.03: 2.8/2.8; 2.1.30:  
3.9/3.4  
A2.01: 3.1/3.2  
Safety Function: Radioactivity Release (9)  
Time Required: 10 minutes  
Time Critical: No  
Faulted: No  
Performance: Simulate  
Reference(s): SOI 04-S-01-Z51-1 section 5.3  
Handout(s): SOI 04-S-01-Z51-1  
# Manipulations: 6  
# Critical Steps: 6  
Group #: 2

### Simulator Setup/Required Plant Conditions:

- 1 Shift Manager/ Control Room Supervisor must approve simulation in the Control Room.
- 2 Notify the Control Room Operator and Operator At the Controls of the simulation.

### Safety Concerns:

1. Do NOT allow candidate to manipulate Control Room controls.

Equipment Needed: None.

### Initial Condition(s):

- Control Room Standby Fresh Air Unit 'A' is operating due to an I&C surveillance. The surveillance is complete and all signals are cleared and reset.

### Initiating Cue(s):

- You have been directed to secure Control Room Standby Fresh Air Unit 'A' and return it to Standby per the SOI.

## **Z51 Task 1:     Secure Control Room Standby Fresh Air Unit**

### **Notes**

1. None.

**Task Overview:** This task is to secure the Control Room HVAC Standby Fresh Air Unit per the SOI.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

- ☐\*     *Open CONT RM NORM O/A INBD INL VLV Z51-F010.*  
**Standard:** Candidate opens Z51-F010.  
**Cue:**   **Red light on, green light off.**  
**Notes:** This is located on Control Room Panel H13-P855.
- ☐\*     *Open CONT RM NORM O/A OTBD INL VLV Z51-F011.*  
**Standard:** Candidate opens Z51-F011.  
**Cue:**   **Red light on, green light off.**  
**Notes:** This is located on Control Room Panel H13-P855.
- ☐\*     *Stop CONT RM FRESH AIR UNIT A fan.*  
**Standard:** Candidate stops Control Room Fresh Air Unit 'A' fan.  
**Cue:**   **Green light on, red light off.**  
**Notes:** This is located on Control Room Panel H13-P855.
- ☐     Check closed Z51-F007 CONT RM FRESH AIR UNIT A INL VLV & Z51-F008 CONT RM FRESH AIR UNIT A RECIRC VLV.  
**Standard:** Candidate observes Z51-F007 and Z51-F008 are closed.  
**Cue:**   **Green light on, red light off.**  
**Notes:** These are located on Control Room Panel H13-P855.
- ☐     Check closed Z51-F016 CONT RM FRESH AIR UNIT B INL VLV & Z51-F014 CONT RM FRESH AIR UNIT B RECIRC VLV.  
**Standard:** Candidate observes Z51-F016 and Z51-F014 are closed.  
**Cue:**   **Green light on, red light off.**  
**Notes:** These are located on Control Room Panel H13-P855. Candidate may not perform this step since it is for Control Room Fresh Air Unit 'B'. This is acceptable.
- ☐\*     *Open CONT RM UTILITY EXH FAN INBD INL VLV Z51-F003.*  
**Standard:** Candidate opens Z51-F003.  
**Cue:**   **Red light on, green light off.**  
**Notes:** This is located on Control Room Panel H13-P855.

☐ \* Open CONT RM UTILITY EXH FAN OTBD INL VLV Z51-F004.

**Standard:** Candidate opens Z51-F004.

**Cue:** Red light on, green light off.

**Notes:** This is located on Control Room Panel H13-P855.

☐ \* Start CONT RM UTILITY EXH FAN.

**Standard:** Candidate starts Control Room Utility Exhaust fan.

**Cue:** Red light on, green light off.

**Notes:** This is located on Control Room Panel H13-P854.

Task Standard(s):

Control Room Standby Fresh Air Unit 'A' is secured to Standby.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop:  
\_\_\_\_\_

## **Z51 Task 1:     Secure Control Room Standby Fresh Air Unit**

Follow-Up Questions & Answers:

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Comments:

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# **Secure Control Room Standby Fresh Air Unit**

**Give this page to the student**

## **Initial Condition(s):**

- Control Room Standby Fresh Air Unit 'A' is operating due to an I&C surveillance. The surveillance is complete and all signals are cleared and reset.

## **Initiating Cue(s):**

- You have been directed to secure Control Room Standby Fresh Air Unit 'A' and return it to Standby per the SOI.

**TRAINING PROGRAM:**

OPERATIONS TRAINING
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**\*LESSON PLAN TITLE:**

START, PARALLEL AND LOAD DIV I DIESEL GENERATOR
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**APPROXIMATE TIME REQUIRED:** 25 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

☐ New Material     
 ☐ Minor Revision     
 ☐ Major Revision

**REASON FOR REVISION:**

Revise JPM to New format and update for NRC Exams. This JPM replaces GJPM-LOR-P7500.04 Task 7

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>		
	Preparer	Date
<b>Reviewed By:</b>		
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>		
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>		
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>		
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet      ENS      ENN      Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information



## **Generic Instructions**

1. Standard cues for valve operation:
  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
    - 2) "Full closed" = "red light off, green light on"
  - b. Manual valves
    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
    - 2) "Full closed" = "you feel resistance in the clockwise direction"
2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
3. Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.
4. Obtain Shift Management's permission before opening any control panel door or instrument cover.
5. It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.
6. Consideration of electrical safety must be made during the performance of certain tasks involving electrical circuits and circuit breakers. The performer should be aware that working on or near energized equipment requires, at a minimum, wearing 100% cotton clothing and low voltage (Class 0) gloves while removing or securing shock hazards such as chains, jewelry, watches and metal-framed eyeglasses. Operating or racking circuit breakers may require additional PPE. Details can be found in Att. 2 of the Electrical Safety Rulebook and General Operating procedure 04-S-04-2 (Operation of Electrical Circuit Breakers)

**Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.**

## **P75 Task 2:      **Start. Parallel and Load Div I Diesel Generator****

Setting: Simulator  
Type: RO  
Task: CRO-P75-002  
K&A: 264000 A4.04: 3.7/3.7; 2.1.30: 3.9/3.4  
262001 A4.01: 3.4/3.7  
Safety Function: Electrical (6)  
Time Required: 25 minutes  
Time Critical: No  
Faulted: **YES**  
Performance: Perform  
Reference(s): SOI 04-1-01-P75-1 section 4.2 & 4.4  
Handout(s): SOI 04-1-01-P75-1  
# Manipulations: 11  
# Critical Steps: 11  
Group #: 1

### Simulator Setup/Required Plant Conditions:

- 1 Any Power IC.
- 2 No ECCS Initiations present.
- 3 Start up Standby Service Water 'A' and place it through the RHR Heat Exchangers.
- 4 Place Malfunction **p41148a** on **TRIGGER 1**

Safety Concerns: None

### Equipment Needed:

Setup headsets for the operator to the Instructor booth.

Initial Condition(s):

- Division I Diesel Generator is in Standby per the SOI.
- Two Operators are standing by at the Diesel Generator.
- I&C has completed ALL testing required to run the Diesel Generator and verified the crank case manometer.
- Chemistry has sampled the Jacket Water System and it is ready for operation.
- There are NO open work orders on the diesel.
- Governor Oil level has been verified satisfactory.
- Standby Service Water 'A' is operating.
- The last Diesel Generator run for DG11 was 2 weeks ago.

Initiating Cue(s):

- You have been directed to start Div I Diesel Generator and operate it in parallel with Offsite and load the Diesel to 3 MWe and 1.5 MVARs.

## **P75 Task 2:      Start. Parallel and Load Div I Diesel Generator**

### **Notes**

1. None.

**Task Overview:** This task is to start the Division I Diesel Generator and parallel the generator to 15AA bus and load the generator with real and reactive load per the SOI. With the Diesel connected to the bus loaded, a loss of Standby Service Water will be received requiring the candidate to secure the Diesel Generator and prevent its operation.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

If asked, cue the candidate another operator will complete the Diesel Start Log.

- ☐\*      *Place DG 11 in MAINTENANCE by simultaneously depressing the Local and Remote Maintenance pushbuttons.*  
**Standard:** Candidate coordinates with the local operator to place the Diesel Generator in Maintenance.  
**Cue:** The local Maintenance pushbutton is depressed.  
**Notes:** Simulator Operator toggle remote function p75057 to Maintenance. The pushbutton is on H13-P864 section 1C. Annunciator for DG11 AUTO START NOT AVAIL H13-P864 1A-D1 will come in.

Cue the Candidate that local operations per 04-1-01-P75-1 sections 4.2.2(a) are complete and the diesel generator has been returned to OPERATIONAL.

**SIMULATOR OPERATOR:** Toggle remote function p75057 to Operational.

Annunciator for DG11 AUTO START NOT AVAIL H13-P864 1A-D1 will clear.

- ☐      Start Auxiliary Lube Oil Pump locally.  
**Standard:** Candidate instructs the local operator to start the Auxiliary Lube Oil Pump and return the control to AUTO and then stop the Auxiliary Lube Oil Pump once Turbo Oil Press Left and Right rises > 20 psig.  
**Cue:** Turbo Oil Pressure is > 20 psig and the Auxiliary Lube Oil Pump is in AUTO.  
**Notes:**

- ☐\* Start Division I Diesel Generator on H13-P864 by depressing the DIV 1 DSL ENG RMT MAN START pushbutton.  
**Standard:** Candidate starts Division I Diesel Generator.  
**Cue:** If asked, DG Trouble Alarm due to low starting air pressure, the motor driven air compressor is operating.  
**Notes:** Pushbutton under cap on H13-P864 section 1C.
- ☐ Observes P41-F018A opens.  
**Standard:** Candidate checks P41-F018A opens and SSW 'A' is operating.  
**Cue:**  
**Notes:** Indication is on H13-P870 section 1C.
- ☐ Observes DG 11 READY TO LOAD status light is on.  
**Standard:** Candidate checks DG 11 READY TO LOAD status light is on.  
**Cue:**  
**Notes:** Light is on H13-P864 section 1B.
- ☐ Checks the governor oil level is stable.  
**Standard:** Candidate contacts local operator to verify governor oil level is stable.  
**Cue:** Governor oil level is stable at the black line in the sightglass.  
If asked, Auxiliary Oil Pump is not running (Note at the step.)  
**Notes:** Step 4.2.2.c.8
- ☐ Select phase of bus voltage to be monitored with VM 4.16KV BUS 15AA VOLTMETER handswitch.  
**Standard:** Candidate observes voltmeter is selected to monitor bus 15AA voltage.  
**Cue:**  
**Notes:** Section 1C of H13-P864.
- ☐\* Place SYN CONT FDR BKR 152-1508 handswitch to ON.  
**Standard:** Candidate turns on the sync switch for breaker 152-1508.  
**Cue:**  
**Notes:** Section 1C of H13-P864. Synchroscope will turn on and syc scope lights will be going on and off.

- \* Defeat Diesel Generator Output breaker interlock by placing the DG11 PRL CONT handswitch to PRL momentarily and allowing spring return to OFF.  
**Standard:** Candidate places DG 11 PRL CONT handswitch to PRL  
**Cue:**  
**Notes:** Section 1C of H13-P864. This places the Droop Circuit in service for the Diesel Generator.
- \* Adjust DG 11 output voltage to 50 volts above the 15AA bus.  
**Standard:** Candidate adjusts DG output voltage (INCOMING) to indicate  $\approx$  50 volts above bus 15AA (RUNNING) using AUTO VOLT SET PT CONT DG11 handswitch.  
**Cue:**  
**Notes:** Section 1C of H13-P864. If voltage is within range, no adjustments are necessary. This is acceptable.
- \* Adjust DG11 speed to bring output frequency slightly higher than bus 15AA frequency.  
**Standard:** Candidate adjusts DGG speed to get the Syncroscope turning slowly in the FAST (clockwise) direction using MAN GOV CONT DG 11.  
**Cue:**  
**Notes:** Section 1C of H13-P864. This is dependent on the comfortability of the candidate. Candidate may not have to adjust speed at all. This is acceptable.
- \* Close DG 11 output breaker 152-1508 when the Syncroscope is at  $\approx$  five minutes to 12 o'clock on the meter.  
**Standard:** Candidate closes DG 11 output breaker 152-1508.  
**Cue:**  
**Notes:** Section 1C of H13-P864. Syncroscope should stop and the lights are off.
- \* Raise real load on the diesel generator by going to RAISE on MAN GOV CONT DG 11.  
**Standard:** Candidate raises real load on the diesel generator to  $\approx$ 3 MWe using the speed control.  
**Cue:**  
**Notes:**

- \* Raise reactive load on the diesel generator by going to RAISE on AUTO VOLT SET PT CONT DG 11.  
**Standard:** Candidate raises reactive load on the diesel generator to  $\approx 1.5$  MVAR using the voltage regulator control.  
**Cue:**  
**Notes:**
  
- Place SYN CONT FDR BKR 152-1508 handswitch to OFF.  
**Standard:** Candidate turns off the sync switch for breaker 152-1508.  
**Cue:**  
**Notes:** The candidate may elect to do this at a later time or not at all. This is acceptable.

**SIMULATOR OPERATOR: Trip SSW Pump 'A' by activating TRIGGER 1.**

**If asked cue the candidate to unload Diesel Generator 11 and immediately secure the diesel and place the Diesel Generator in Maintenance Mode.**

- \* Trip Division 1 Diesel Generator using either the REMOTE STOP pushbutton on H13-P864 panel.  
**Standard:** Candidate trips the diesel generator using remote controls on H13-P864.  
**Cue:**  
**Notes:** The amount of unloading is not critical. Candidate may elect to proceed to the next item without performing this. This is acceptable.
- OR**
- \* Unload the Diesel Generator by lowering on the MAN GOV CONT DG 11 and AUTO VOLT SET PT CONT DG 11.  
**Standard:** Candidate unloads the Diesel Generator to  $< 350$  and  $\approx 0$  MVARs.  
**Cue:**  
**Notes:** The amount of unloading is not critical. Candidate may elect to proceed to the next item without performing this. This is acceptable.
  
  - \* Open DG 11 Output Breaker 152-1508.  
**Standard:** Candidate trips DG 11 Output Breaker 152-1508.  
**Cue:**  
**Notes:**

**The critical item is to remove the Diesel Generator from the bus and get the load off the machine.**

**ANY COMBINATION OF THE ABOVE THREE STEPS IS ACCEPTABLE.**  
**If asked, cue the candidate to not wait the cooldown on the diesel. Go ahead and stop the Diesel Generator and place in Maintenance.**

- ☐ Unblock DG 11 Output Breaker parallel interlock by placing DG 11 PRL CONT to RESET.  
**Standard:** Candidate turns DG 11 PRL CONT to RESET.  
**Cue:**  
**Notes:** Candidate may elect not to perform this. This is acceptable.
  
- ☐ Reset Division 1 LSS System by depressing LSS PANEL RESET pushbutton and observing the white indicating light comes ON after releasing the pushbutton.  
**Standard:** Candidate resets Division 1 LSS System.  
**Cue:**  
**Notes:** Candidate may elect not to perform this. This is acceptable.
  
- ☐\* Place DG 11 in MAINTENANCE by simultaneously depressing the Local and Remote Maintenance pushbuttons.  
**Standard:** Candidate coordinates with the local operator to place the Diesel Generator in Maintenance.  
**Cue: The local Maintenance pushbutton is depressed.**  
**Notes:** Simulator Operator toggle remote function p75057 to Maintenance.  
The pushbutton is on H13-P864 section 1C. Annunciator for DG11 AUTO START NOT AVAIL H13-P864 1A-D1 will come in.

**Evaluator CUE the candidate another operator will complete securing the Diesel Generator support systems.**

Task Standard(s):

Diesel Generator 11 is in Maintenance mode following loss of SSW 'A'.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_



## **P75 Task 2:     Start. Parallel and Load Div I Diesel Generator**

Follow-Up Questions & Answers:

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Comments:

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## **Start. Parallel and Load Div I Diesel Generator**

**Give this page to the student**

### Initial Condition(s):

- Division I Diesel Generator is in Standby per the SOI.
- Two Operators are standing by at the Diesel Generator.
- I&C has completed ALL testing required to run the Diesel Generator and verified the crank case manometer.
- Chemistry has sampled the Jacket Water System and it is ready for operation.
- There are NO open work orders on the diesel.
- Governor Oil level has been verified satisfactory.
- Standby Service Water 'A' is operating.
- The last Diesel Generator run for DG11 was 2 weeks ago.

### Initiating Cue(s):

- You have been directed to start Div I Diesel Generator and operate it in parallel with Offsite and load the Diesel to 3 MWe and 1.5 MVARs.

**TRAINING PROGRAM:**

OPERATIONS TRAINING

**\*LESSON PLAN TITLE:**STARTUP 2<sup>nd</sup> REACTOR FEED PUMP & PLACE ON  
MASTER LEVEL CONTROLLER**APPROXIMATE TIME REQUIRED:** 30 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

New Material

Minor Revision

Major Revision

**REASON FOR REVISION:**

New JPM

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>	_____	_____
	Preparer	Date
<b>Reviewed By:</b>	_____	_____
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>	_____	_____
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>	_____	_____
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>	_____	_____
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet      ENS      ENN      Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

1. Standard cues for valve operation:
  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
    - 2) "Full closed" = "red light off, green light on"
  - b. Manual valves
    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
    - 2) "Full closed" = "you feel resistance in the clockwise direction"
2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
3. Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.
4. Obtain Shift Management's permission before opening any control panel door or instrument cover.
5. It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.
6. Consideration of electrical safety must be made during the performance of certain tasks involving electrical circuits and circuit breakers. The performer should be aware that working on or near energized equipment requires, at a minimum, wearing 100% cotton clothing and low voltage (Class 0) gloves while removing or securing shock hazards such as chains, jewelry, watches and metal-framed eyeglasses. Operating or racking circuit breakers may require additional PPE. Details can be found in Att. 2 of the Electrical Safety Rulebook and General Operating procedure 04-S-04-2 (Operation of Electrical Circuit Breakers)

**Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.**

## **N21 Task 15:      Startup 2<sup>nd</sup> Reactor Feed Pump & Place on Master Level Controller**

Setting: Simulator  
Type: RO  
Task: CRO-N21-005  
K&A: 259001 2.1.30: 3.9/3.4; A2.07: 3.7/3.8; A4.02: 3.9/3.7  
259002 A4.01: 3.8/3.6; A4.03: 3.8/3.6; A2.06: 3.3/3.4  
Safety Function: Inventory Control (3)  
Time Required: 30 minutes  
Time Critical: No  
Faulted: **YES**  
Performance: Perform  
Reference(s): SOI 04-1-01-N21-1 section 4.5.5 & 4.6.5; ONEP 05-1-02-V-6 section 2.1 & 2.2  
Handout(s): SOI 04-1-01-N21-1 & ONEP 05-1-02-V-6  
# Manipulations: 10  
# Critical Steps: 10  
Group #: 1/2

### Simulator Setup/Required Plant Conditions:

- 1 IC-13 45% Power
- 2 Insert malfunction **fw121b present condition ramp to 100% over 15 seconds.**
- 3 Recirc Pumps in Fast Speed
- 4 Reactor Feed Pump 'A' in service on the Master Level Controller in Three-Element control.
- 5 Reactor Feed Pump 'B' in standby per section 4.5.3 of SOI 04-1-01-N21-1 with the RFP RESET and N21-F014B full open.

### Safety Concerns:

- 6 None

Equipment Needed: None.

Initial Condition(s):

- The plant is operating at 45 % Power.
- Recirc Pumps are operating in Fast Speed.
- Reactor Feed Pump 'A' is operating on the Master Level Controller in Three-Element.
- Reactor Feed Pump 'B' is in standby per section 4.5.3 of SOI 04-1-01-N21-1.

Initiating Cue(s):

- You have been directed to start Reactor Feed Pump 'B' and place it on the Master Level Controller per the SOI.

## **N21 Task 15:      Startup 2<sup>nd</sup> Reactor Feed Pump & Place on Master Level Controller**

### **Notes**

1. None.

**Task Overview:** This task is to startup the second Reactor Feed Pump at power and place it in service on the Master Level Controller per the SOI. As the pump is started and placed on the Master Level Controller in Automatic the Reactor Feed Pump will speed up feeding the reactor. This will indicate the need to enter the Feedwater Control Failure Max Demand ONEP 05-1-02-V-6 and take actions to prevent excessive level in the reactor.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

- ☐ Observe the following on RFP 'B':
  - ☐ RFPT B is RESET.
  - ☐ High Pressure and Low Pressure Stop valves are full open.
  - ☐ The MANUAL, RAISE and LOWER pushbuttons are backlit. LOWER pushbutton should not be illuminated due to RFPT speed at 0 rpm.

**Standard:** Candidate checks indications on H13-P680 section 2C.

**Cue:**

**Notes:** RFPT B TRIP RESET indicates RED; RFPT LPSV N21-F201B TEST indicates RED; RFPT B HPSV N21-F202B TEST indicates RED.

- ☐\* Close N21-F014B RFP B DISCH VLV.

**Standard:** Candidate jogs closed N21-F014B.

**Cue:**

**Notes:** H13-P680 section 2C.

- ☐\* Depress RFPT B RAISE pushbutton to increase RFP speed to >200 RPM on H13-P680 section 2C.

**Standard:** Candidate depresses RAISE pushbutton for RFP 'B' to raise speed to above 200 rpm.

**Cue:**

**Notes:** H13-P680 section 2D right side N21-R603B (indicator is in 100 rpm increments).

- ☐\* When the RFPT B SPEED AUTO pushbutton begins flashing, depress the RFPT B SPEED AUTO pushbutton on H13-P680 section 2C.

**Standard:** Candidate shifts the controller to SPEED AUTO.

**Cue:**

**Notes:**

- ☐ Observes the following:

- ☐ MANUAL pushbutton back light extinguishes.
- ☐ SPEED AUTO pushbutton is backlit solid.
- ☐ RAISE pushbutton is backlit solid.
- ☐ LOWER pushbutton is backlit solid.

**Standard:** Candidate observes the above actions occurring.

**Cue:**

**Notes:**

Candidate should go to section 4.6.5 of SOI 04-1-01-N21-1.

- ☐\* Depress the RAISE pushbutton to raise RFP B speed to > 2100 RPM to obtain the FW AUTO pushbutton blinking.

**Standard:** Candidate raises RFP B speed to >2100 RPM.

**Cue:**

**Notes:** Section 2C of H13-P680.



- ☐\* Depress FW AUTO pushbutton to transfer RFP B speed control to 1C34-LK-R613 in manual.

**Standard:** Candidate transfers RFP B to FW AUTO.

**Cue:**

**Notes:** 1C34-LK-R613 in on H13-P680 section 2D.

- ☐ Observes the following:

- ☐ SPEED AUTO pushbutton back light extinguishes.
- ☐ FW AUTO pushbutton is backlit solid.
- ☐ RAISE pushbutton back light extinguishes.
- ☐ LOWER pushbutton back light extinguishes.

**Standard:** Candidate observes the above actions occurring.

**Cue:**

**Notes:**

- ☐\* Raise speed of RFP B to obtain 5 to 10 psig above the discharge pressure of RFP A.

**Standard:** Candidate raises RFP B speed using the OUT  $\uparrow\downarrow$  pushbuttons on controller 1C34-LK-R613 to obtain 5 to 10 psig above RFP A discharge pressure.

**Cue:**

**Notes:** Candidate may use the PDS computer for the indications of RFP discharge pressures.

- ☐\* Select OUT on the VAR SEL pushbutton for both RFP indications on controllers 1C34-FK-R601 and 1C34-LK-R613.

**Standard:** Candidate depresses VAR SEL pushbuttons to select OUT for the digital indication on 1C34-FK-R601 and 1C34-LK-R613.

**Cue:**

**Notes:** This changes the digital indication input but not controller output to the RFP.

- ☐ \* Slowly JOG OPEN N21-F014B, RFP B DISCH VLV to obtain a digital indication of < 5% difference between RFP A and RFP B outputs as indicated on 1C34-FK-R601 and 1C34-LK-R613.

**Standard:** Candidate jogs open N21-F014B slowly to bring the output of RFP A to within 5% of RFP B.

**Cue:**

**Notes:**

**SIMULATOR OPERATOR:** When the candidate transfers RFP B controller 1C34-LK-R613 to AUTO, activate malfunction to raise RFP B speed.

**Candidate will take actions per the ONEP 05-1-02-V-6 Feedwater Control Failure Max Demand.**

**These actions may include any of the following:**

- ☐ \* Take manual control of RFP B output by either:
- ☐ \* Shift 1C34-LK-R613 to MANUAL and lower RFP B output.
  - ☐ \* Shift RFP B to SPEED AUTO and lower RFP B output.
  - ☐ \* Shift RFP B to MANUAL and lower RFP B output.

**Standard:** Candidate takes action to lower RFP B output.

**Cue:** If asked, cue as Control Room Supervisor to take actions per the ONEP to return Reactor Water Level to 32 to 42 inches.

**Notes:** Candidate may not take any of the above actions if the next action is taken. This is acceptable.

**OR**

- ☐ \* Manually Trip RFP B and allow RFP A to return Reactor Water level to normal.

**Standard:** Candidate depresses RFP B TRIP pushbutton.

**Cue:**

**Notes:** If Reactor Water Level drops to +32 inches a Recirc Flow Control Valve Runback will occur. This is acceptable per the ONEP.

**Once the candidate has taken actions to control Reactor Water Level, the Evaluator may terminate the JPM.**

Task Standard(s):

Reactor level is between +32 to +42 inches with at least one Reactor Feed Pump on the Master Level Controller in Automatic.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_

## **N21 Task 15:      Startup 2<sup>nd</sup> Reactor Feed Pump & Place on Master Level Controller**

Follow-Up Questions & Answers:

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Comments:

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## **Startup 2<sup>nd</sup> Reactor Feed Pump & Place on Master Level Controller**

**Give this page to the student**

### Initial Condition(s):

- The plant is operating at 45 % Power.
- Recirc Pumps are operating in Fast Speed.
- Reactor Feed Pump 'A' is operating on the Master Level Controller in Three-Element.
- Reactor Feed Pump 'B' is in standby per section 4.5.3 of SOI 04-1-01-N21-1.

### Initiating Cue(s):

- You have been directed to start Reactor Feed Pump 'B' and place it on the Master Level Controller per the SOI.

**TRAINING PROGRAM:****OPERATIONS TRAINING****\*LESSON PLAN TITLE:****SECURE CONTAINMENT SPRAY AND ALIGN FOR RPV  
INJECTION****APPROXIMATE TIME REQUIRED:** 10 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

New Material

Minor Revision

Major Revision

**REASON FOR REVISION:**

New JPM

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>	_____	_____
	Preparer	Date
<b>Reviewed By:</b>	_____	_____
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>	_____	_____
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>	_____	_____
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>	_____	_____
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet      ENS      ENN      Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

1. Standard cues for valve operation:
  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
    - 2) "Full closed" = "red light off, green light on"
  - b. Manual valves
    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
    - 2) "Full closed" = "you feel resistance in the clockwise direction"
2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
3. Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.
4. Obtain Shift Management's permission before opening any control panel door or instrument cover.
5. It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.
6. Consideration of electrical safety must be made during the performance of certain tasks involving electrical circuits and circuit breakers. The performer should be aware that working on or near energized equipment requires, at a minimum, wearing 100% cotton clothing and low voltage (Class 0) gloves while removing or securing shock hazards such as chains, jewelry, watches and metal-framed eyeglasses. Operating or racking circuit breakers may require additional PPE. Details can be found in Att. 2 of the Electrical Safety Rulebook and General Operating procedure 04-S-04-2 (Operation of Electrical Circuit Breakers)

**Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.**

## **E12 Task 15:        Secure Containment Spray and Align for RPV Injection**

Setting: Simulator  
Type: RO  
Task: CRO-E12-015; CRO-E12-003; CRO-EP-012  
K&A: 226001 A4.01: 3.5/3.4; A4.03: 3.5/3.4; A4.07: 3.5/3.5; 2.1.30: 3.9/3.4  
A2.04: 3.0/3.0  
203000 A2.13: 3.2/3.3; A3.01: 3.8/3.7; A4.02: 4.1/4.1  
Safety Function: Containment (5) & Water Inventory (2)  
Time Required: 10 minutes  
Time Critical: No  
Faulted: **YES**  
Performance: Perform  
Reference(s): SOI 04-1-01-E12-1 section 5.3.2c & d; 5.4.2a & b; Att VII; 05-S-01-EP-2 Att. 12  
Handout(s): SOI 04-1-01-E12-1; EP 05-S-01-EP-2 Att. 12  
# Manipulations: 4  
# Critical Steps: 4  
Group #: 2/1

### Simulator Setup/Required Plant Conditions:

- 1 Establish LOCA conditions with the RPV depressurized and leak size sufficient that 2 RHR Systems are required to raise RPV water level.
- 2 Lower Reactor Water Level to below Top of Active Fuel preferably < -192 inches.
- 3 Insert trips on ALL ECCS except RHR 'A' and 'B'.
- 4 Insert a 100% line break on Feedwater Line 'B'.
- 5 Start RHR 'A' and 'B' in Containment Spray.
- 6 Insert Malfunction **e12188c** on RHR 'A' LPCI Injection Valve E12-F042A.
- 7 Insert override **di\_1e12m609ap601/20c** to **AUTO**, E12-F042A handswitch.
- 8 Using Remote Functions Install **EP-2 Attachment 12** as **COMPLETE**

Safety Concerns: None

Equipment Needed: None.



Initial Condition(s):

- A LOCA has occurred on Feedwater line 'B' in the Drywell.
- RHR 'A' and 'B' are operating in Containment Spray.
- The following EP Attachments are complete:  
Attachments 7, 10, and 26.
- Adequate Core Cooling is NOT assured.
- Attachment 12 is complete up to and including step 2.3.2.

Initiating Cue(s):

- You have been directed to secure Containment Spray and align LPCI 'A' and 'B' for RPV injection to restore reactor water level.

**GIVE the candidate a copy of EP-2 Attachment 12 marked up.**

## **E12 Task 15:      Secure Containment Spray and Align for RPV Injection**

### **Notes**

1. None.

**Task Overview:** This task is to secure RHR systems from Containment Spray and align them for injection into the RPV during a LOCA. During the performance one RHR system will not provide sufficient flow to raise RPV water level and the second RHR system will have a failure of E12-F042 LPCI injection valve to open requiring the use of an alternate injection path through E12-F053. Realignment of RHR from Containment Spray to LPCI mode is directed from the Emergency Procedures when there is not Adequate Core Cooling. Use of Shutdown Cooling lines for injection to the RPV from RHR is allowed per the Emergency Procedures and attachments are provided to facilitate this evolution.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

**Evaluator Note:** Candidate may use SOI or Emergency Use Hard Card, either is acceptable.

- ☐ Check Containment pressure is < 7.84 psig and lowering.  
**Standard:** Candidate checks Containment Pressure is < 7.84 psig.  
**Cue:**  
**Notes:** Containment pressure is displayed either on SPDS or H13-P870 sections 3B/9B.
- ☐\* *Depress CTMT SPR A RESET pushbutton.*  
**Standard:** Candidate depresses the Containment Spray Reset pushbuttons.  
**Cue:**  
**Notes:** These pushbuttons are on H13-P601 sections 20B.  
**The order of RHR 'A' or 'B' is NOT Critical.**
- ☐ Check the white light over the CTMT SPR A RESET pushbutton extinguishes.  
**Standard:** Candidate observes the white light over the Containment Spray Reset pushbuttons turn off.  
**Cue:**  
**Notes:**

- ☐ \* Depress CTMT SPR B RESET pushbutton.  
**Standard:** Candidate depresses the Containment Spray Reset pushbuttons.  
**Cue:**  
**Notes:** These pushbuttons are on H13-P601 sections 17B.  
**The order of RHR 'A' or 'B' is NOT Critical.**
- ☐ Check the white light over the CTMT SPR B RESET pushbutton extinguishes.  
**Standard:** Candidate observes the white light over the Containment Spray Reset pushbuttons turn off.  
**Cue:**  
**Notes:**
- ☐ Check that RHR A reverts to LPCI mode as follows:
- ☐ E12-F042A opens. (E12-F042A will NOT OPEN and will lose power to the MOV.)
  - ☐ E12-F028A closes.
  - ☐ RHR A DISCH FLO indicates flow is delivered to Reactor Vessel.
- Standard:** Candidate observes E12-F028A close and notes the failure of E12-F042A to OPEN and attempts to open the valve with the handswitch.  
**Cue:** When asked, cue the candidate to establish flow from RHR 'A' to the RPV using EP-2, Attachment 12. Attachment 12 is complete up to and including step 2.3.2.  
**Notes:** Ensure candidate has marked up copy of Attachment 12 or the next item of the JPM will not be accomplished.
- ☐ \* Close B21-F065A FW INL SHUTOFF VLV.  
**Standard:** Candidate closes B21-F065A.  
**Cue:**  
**Notes:** Section 2C of H13-P680.  
**May be completed early sequence is NOT critical and is acceptable.**
- ☐ \* Open E12-F053A RHR A SHUTDN CLG RTN TO FW.  
**Standard:** Candidate opens E12-F053A.  
**Cue:**  
**Notes:** Section 20C of H13-P601.

- ☐ Check that RHR B reverts to LPCI mode as follows:
  - ☐ E12-F042B opens.
  - ☐ E12-F028B closes.
  - ☐ RHR B DISCH FLO indicates flow is delivered to Reactor Vessel.

**Standard:** Candidate observes E12-F028B close and E12-F042B to open.

**Cue:**

**Notes:**

**Evaluator Note: RHR 'B' may also be realigned for injection via E12-F053B, this is acceptable.**

Task Standard(s):

RHR 'A' is injecting to the RPV via E12-F053A and RHR 'B' is injecting through E12-F042B (or E12-F053B).

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_

## **E12 Task 15:      Secure Containment Spray and Align for RPV Injection**

Follow-Up Questions & Answers:

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Comments:

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# **Secure Containment Spray and Align for RPV Injection**

**Give this page to the student**

## **Initial Condition(s):**

- A LOCA has occurred on Feedwater line 'B' in the Drywell.
- RHR 'A' and 'B' are operating in Containment Spray.
- The following EP Attachments are complete:  
Attachments 7, 10, and 26.
- Adequate Core Cooling is NOT assured.
- Attachment 12 is complete up to and including step 2.3.2.

## **Initiating Cue(s):**

- You have been directed to secure Containment Spray and align LPCI 'A' and 'B' for RPV injection to restore reactor water level.

**TRAINING PROGRAM:**

OPERATIONS TRAINING
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**\*LESSON PLAN TITLE:**

OPERATE RCIS TO BRING THE REACTOR CRITICAL
--

**APPROXIMATE TIME REQUIRED:** 20 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

☐ New Material     
 ☐ Minor Revision     
 ☐ Major Revision

**REASON FOR REVISION:**

Revise JPM to New format and update for NRC Exams. This JPM replaces GG-1-JPM-RO-C1124.00

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>		
	Preparer	Date
<b>Reviewed By:</b>		
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>		
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>		
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>		
	*Date	

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**FLEET/REGIONAL PROGRAM CONCURRENCE:**

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CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

1. Standard cues for valve operation:
  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
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    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
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2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
3. Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.
4. Obtain Shift Management's permission before opening any control panel door or instrument cover.
5. It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.
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## **C1102 Task 4:      Operate RCIS to Bring the Reactor Critical**

Setting: Simulator  
Type: RO  
Task: CRO-C11(2)-004; CRO-C51-001; CRO-C51-002  
K&A: 201005 2.1.30: 3.9/3.4; A3.01: 3.5/3.5; A3.02: 3.5/3.5; A3.03: 3.4/3.3  
A4.01: 3.7/3.7; A4.02: 3.7/3.7  
215003 A4.03: 3.6/3.4  
215004 A1.01: 3.0/3.1; A1.04: 3.5/3.5; A4.04: 3.2/3.2  
Safety Function: Instrumentation (7) & Reactivity (1)  
Time Required: 20 minutes  
Time Critical: No  
Faulted: No  
Performance: Perform  
Reference(s): SOI 04-1-01-C11-2; 04-1-01-C51-1; IOI 03-1-01-1; ARI 04-1-02-1H13-P680  
Handout(s): SOI 04-1-01-C11-2; 04-1-01-C51-1; IOI 03-1-01-1; ARI 04-1-02-1H13-P680; Control Rod Movement Sequence for Startup  
# Manipulations: 8  
# Critical Steps: 5  
Group #: 1/2

### Simulator Setup/Required Plant Conditions:

- 1 Simulator in IC-4
- 2 Withdraw control rods per startup sequence to Step 25.

Safety Concerns: None

Equipment Needed: None.

Initial Condition(s):

- The plant is in Mode 2 slightly subcritical.
- Control Rods are being withdrawn per IOI-1 to startup the reactor.
- There is a significant amount of decay heat remaining in the reactor.
- All steps of IOI-1 are complete up to step 5.29.
- Reactor Engineering is available for Control Rod Movement verifications.
- Another RO is monitoring and maintaining Reactor Level and Pressure.
- Step 25 of the Control Rod Movement Sequence is complete.
- Control Rod movement is on step 26 of the Control Rod Movement Sequence.
- Reactor Engineering estimates criticality on step 28.
- The reactor is greater than 10 times the original count rate on SRMs.

Initiating Cue(s):

- You have been directed to withdraw Control Rods to bring the reactor critical and control nuclear instrumentation per the IOI.
- Inform the Control Room Supervisor when IRMs have reached Range 4.

## **C1102 Task 4:     Operate RCIS to Bring the Reactor Critical**

### **Notes**

1. This JPM is a LOW power evolution.

**Task Overview:** This task is to withdraw control rods per the Control Rod Movement Sequence to establish criticality and raise reactor power to Range 4 of the Intermediate Range. During this evolution, the candidate will have to control the positions of and monitor Nuclear Instrumentation during the approach to criticality and once the reactor is critical and power is rising.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

- \*     *Withdraw Control Rods per the Control Rod Movement Sequence Sheet.*  
**Standard:** Candidate withdraws Control Rods per the Control Rod Movement Sequence.  
**Cue:** When asked as the Reactor Engineer, verify the correct control rod is selected and its position.  
**Notes:** The 'CRD DRIVE WTR TO RX DP HI' annunciator may alarm due to changes in the CRD Drive Water pressure. If the candidate desires to adjust CRD Drive Water Pressure, cue the candidate another operator will perform this function. The Simulator Operator will make any adjustments. The 'CONT ROD WITHDRAWAL BLOCK' annunciator may annunciate if the candidate selects the incorrect control rod or attempts to restore gang alignment. The candidate must be able to recognize and correct the causes of Control Rod Blocks.
  
- \*     *Perform Control Rod Coupling Check for each control rod withdrawn to position 48.*  
**Standard:** Candidate performs a coupling check for each control rod withdrawn to position 48 by attempting to withdraw the control rod past position 48 and observing the absence of the 'CONT ROD OVERTRAVEL' annunciator.  
**Cue:** None  
**Notes:** Candidate may elect to perform this either in gang or individual mode of operation.

- ☐\* Withdraw Control Rods per the Control Rod Movement Sequence Sheet until the reactor is critical.

**Standard:** Candidate withdraws Control Rods per the Control Rod Movement Sequence while monitoring Source Range Nuclear Instrumentation to observe a steadily rising SRM count rate without control rod motion.

**Cue:**

**Notes:** Control rod position where the reactor is called critical is NOT a critical task.

**The Reactor must NOT be taken critical in Continuous Rod Motion (03-1-01-1 section 2.1.6), this action constitutes a failure of the critical task.**

**The SRM Period annunciator (P680-7A-C10), that indicates a period of < 50 seconds, may alarm briefly as control rods are withdrawn but should clear when control rod motion stops. As long as this alarm does not remain in alarm for an extended period of time this is acceptable.**

- ☐ Determine Reactor Period.

**Standard:** Candidate calculates Reactor Period by timing the amount of time it takes for SRM counts to rise by a factor of 2 and multiplying this by 1.44.

**Cue:** The CRO has completed logging the critical data, denoted time and date of criticality on chart recorders, and made the announcement over the site PA reactor critical.

**Notes:** Reactor Period \_\_\_\_\_ (optional)

- ☐ Continues to withdraw control rods as necessary to reach and maintain a stable reactor period above 50 seconds but with reactor power rising.

**Standard:** Candidate withdraws control rods as necessary to maintain a stable rise in power.

**Cue:**

**Notes:** Candidate may not perform this item if the reactor period achieved during the approach to criticality was acceptable and the rate of power ascension is acceptable.

**This item becomes CRITICAL if the candidate established and maintains a reactor period of < 50 seconds. (03-1-01-1 section 2.1.4)**

**The Candidate is responsible for the ranging of IRMs.**

- Observes SRM/IRM overlap of at least  $\frac{1}{2}$  decade on all operable channels.  
**Standard:** Candidate monitors SRM / IRM overlap.  
**Cue:**  
**Notes:** IRM/APRM LVL DIV 1 & 3 (1C51-NR-R603A & C on P680-5B) and IRM/APRM LVL DIV 2 & 4 (1C51-NR-R603B & D on P680-7B) show a rise in neutron level ( $>2/40$  on range 1) before the SRM LOG COUNT RATE A, C, E & B, D, F (1C51-NR R602A & B on P680-7B) reaches  $1.0 \times 10^5$  CPM. The SRM UPSC ALM/INOP annunciator (P680-7A-B10) will alarm when count rate level exceeds  $1.0 \times 10^5$  CPM and may not clear until the candidate withdraws the SRM detectors out of the core.
- Withdraws SRMs after checking SRM/IRM overlap.  
**Standard:** Candidate withdraws SRM detectors by selecting the individual SRM detectors, the POWER ON pushbutton, and the DRIVE OUT/DRIVING OUT pushbutton.  
**Cue:**  
**Notes: Section 7C of P680.** The detectors will be selected as necessary to maintain SRM count rates between  $1.0 \times 10^2$  CPM and  $1.0 \times 10^5$  CPM. If count rate exceeds  $1.0 \times 10^5$  CPM, the SRM UPSC ALM/INOP annunciator (P680 7A-B10) will alarm. If count rate drops below  $1.0 \times 10^2$  CPM, the SRM DET RTRACT NOT PERM annunciator (P680 7A-C11) will alarm.
- \* *Range up the IRMs as power rises to keep IRMs on scale.*  
**Standard:** Candidate ranges IRMs as necessary by depressing the appropriate IRM UP pushbutton.  
**Cue:**  
**Notes: The UP pushbuttons will backlight when the IRM level has exceeded  $\approx 75\%$  of scale cueing the candidate to range up the IRM channel. A Control Rod Withdrawal Block annunciator (P680 4A2-C5) will alarm if any IRM channel reaches 108/125 of the IRM recorder scale and IRM UPSC ALM annunciator (P680-7A-A9) will alarm.**

**If an IRM channel exceeds the trip setpoint 120/125 of the IRM recorder scale the respective RPS channel will trip and the RPS CH A, C, B, or D IRM UPSC TRIP?INOP annunciator (P680 5A-A8, B8 or 7A-A8, B8) will alarm and a RX SCRAM TRIP annunciator (P680 7A-A2) will alarm indicating at least a half scram.**

**A Half scram is acceptable. If the candidate allows both channels of RPS to Trip for whatever the reason, the candidate FAILS the JPM.**

- ☐ Fully withdraw the SRMs when all the range switches are on Range 3 or above.  
**Standard:** Candidate fully withdraws the SRMs per the C51 SOI when all the IRMs are on Range 3 or above by selecting the SRM A, B, C, D, E, & F SEL pushbuttons (P680-7C2) and energizing the circuit by depressing the POWER ON pushbutton. The POWER ON pushbutton will back light. The DRIVE OUT/DRIVING OUT pushbutton is depressed and the pushbutton will illuminate.  
**Cue:**  
**Notes:** When the respective SRM detector is fully withdrawn, the DIVING OUT lamp will de-energize. The candidate may de-select the SRM as these lights go out. Use of procedure as reference not required. May review in preparation before moving rods.
- ☐\* Raise reactor power to Range 4 of the IRMs.  
**Standard:** Reactor power rises to Range 4 on all 8 IRM/APRM LVL recorders as indicated by the numerical range indicators on P680-7C2.  
**Cue:**  
**Notes:** Candidate may or may not need to withdraw control rods to achieve this.

Task Standard(s):

The Control Room Supervisor is informed that the Reactor is critical on Range 4 of all IRMs.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_

## **C1102 Task 4:     Operate RCIS to Bring the Reactor Critical**

Follow-Up Questions & Answers:

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Comments:

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# **Operate RCIS to Bring the Reactor Critical**

## **Give this page to the student**

### **Initial Condition(s):**

- The plant is in Mode 2 slightly subcritical.
- Control Rods are being withdrawn per IOI-1 to startup the reactor.
- There is a significant amount of decay heat remaining in the reactor.
- All steps of IOI-1 are complete up to step 5.29.
- Reactor Engineering is available for Control Rod Movement verifications.
- Another RO is monitoring and maintaining Reactor Level and Pressure.
- Step 25 of the Control Rod Movement Sequence is complete.
- Control Rod movement is on step 26 of the Control Rod Movement Sequence.
- Reactor Engineering estimates criticality on step 28.
- The reactor is greater than 10 times the original count rate on SRMs.

### **Initiating Cue(s):**

- You have been directed to withdraw Control Rods to bring the reactor critical and control nuclear instrumentation per the IOI.
- Inform the Control Room Supervisor when IRMs have reached Range 4.



**TRAINING PROGRAM:**

OPERATIONS TRAINING
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**\*LESSON PLAN TITLE:**

STARTUP RHR IN SUPPRESSION POOL COOLING FROM THE REMOTE SHUTDOWN PANEL
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**APPROXIMATE TIME REQUIRED:** 15 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

New Material

Minor Revision

Major Revision

**REASON FOR REVISION:**

New JPM

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>	_____	_____
	Preparer	Date
<b>Reviewed By:</b>	_____	_____
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>	_____	_____
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>	_____	_____
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>	_____	
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet      ENS      ENN      Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

1. Standard cues for valve operation:
  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
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  - b. Manual valves
    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
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2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
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## **C61 Task 1:     Startup RHR in Suppression Pool Cooling from the Remote Shutdown Panels**

Setting: Plant (Outside CAA)  
Type: RO  
Task: CRO-C61-001; CRO-C61-009; CRO-E12-019; CRO-P41-001  
K&A: 295016 2.1.30: 3.9/3.4; AA1.07: 4.2/4.3; AK2.01: 4.4/4.5;  
AK3.03: 3.5/3.7  
295013 AA1.01: 3.9/3.9  
295026 EA1.01: 4.1/4.1  
219000 A4.01: 3.8/3.7; A4.02: 3.7/3.5; A4.05: 3.4/3.4  
Safety Function: Instrumentation (7) & Containment (5)  
Time Required: 15 minutes  
Time Critical: No  
Faulted: No  
Performance: Simulate  
Reference(s): ONEP 05-1-02-II-1 Sections 3.11 & 3.12 Attachment VIII  
(Attachment VII)  
Handout(s): ONEP 05-1-02-II-1 Attachment VIII  
# Manipulations: 11  
# Critical Steps: 9  
Group #: 2

### Simulator Setup/Required Plant Conditions:

- 1 Area is accessible.

### Safety Concerns:

- 2 Do NOT operate plant equipment.
- 3 This JPM may be performed on the opposite Division for Protected Train concerns using Attachment VII.

Equipment Needed: None.

Initial Condition(s):

- The Main Control Room has been abandoned due to noxious fumes and control of the plant has been established at the Remote Shutdown Panels.
- The plant is shutdown and RCIC and SRVs are being used to control RPV water level and pressure.
- Standby Service Water 'B' is in Standby per the SOI.

Initiating Cue(s):

- You have been directed to place RHR 'B' in Suppression Pool Cooling with maximum cooling per the ONEP.

## **C61 Task 1:     Startup RHR in Suppression Pool Cooling from the Remote Shutdown Panels**

### **Notes**

1. Remote Shutdown Panels are located on the 111' elevation of the Control Building. Division 2 Remote Shutdown Panel is H22-P151.
2. This is a LOW power JPM due to the requirement for the plant to be shutdown to operate at the Remote Shutdown Panels per ONEP 05-1-02-II-1 steps 3.2.1 or 3.3.1.
3. This JPM may be performed using Division 1 equipment due to protected train concerns this is acceptable.

**Task Overview:** This task is to startup RHR 'B' in Suppression Pool Cooling from the Remote Shutdown Panels per the ONEP. This includes starting up Standby Service Water 'B' and RHR 'B'.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

Start Standby Service Water (SSW) 'B' to supply RHR 'B' Heat Exchangers.

- ☐ Check open or open P41-F068B SSW OUTL FM RHR HX B VLV.  
**Standard:** Candidate checks open P41-F068B.  
**Cue:** Red light on, green light off.  
**Notes:**
  
- ☐\* *Start SSW PMP B P41-C001B.*  
**Standard:** Candidate starts SSW Pump 'B'.  
**Cue:** Red light on, green light off.  
**Notes:**
  
- ☐\* *Open P41-F001B SSW PMP DISCH VLV.*  
**Standard:** Candidate opens P41-F001B.  
**Cue:** Red light on, green light off.  
**Notes:**

- ☐ \* Open P41-F014B SSW INL to RHR HX B VLV.  
**Standard:** Candidate opens P41-F014B.  
**Cue:** Red light on, green light off.  
**Notes:**
- ☐ \* Open P41-F005B SSW LOOP B RTN TO CLG TWR B.  
**Standard:** Candidate opens P41-F005B.  
**Cue:** Red light on, green light off.  
**Notes:** This is a JOG handswitch.
- ☐ Verify closed/close P41-F006B SSW LOOP B RECIRC VLV.  
**Standard:** Candidate checks closed P41-F006B.  
**Cue:** Green light on, red light off.  
**Notes:**
- ☐ Start SSW CLG TWR FAN C P41-C003C and SSW CLG TWR FAN D P41-C003D.  
**Standard:** Candidate starts the SSW B Cooling Tower Fans.  
**Cue:** Red light on, green light off.  
**Notes:**

Start Residual Heat Removal (RHR) 'B' in Suppression Pool Cooling.

- ☐ \* Ensure that the handswitches associated with the following valves match the position indication and transfer control of the valves to the Remote Shutdown Panel by placing the NORM/EMER Transfer switches to EMER:
  - ☐ SHUTDN CLG SUCT VLV E12-F006B XFER switch.
  - ☐ \* SUPP POOL SUCT VLV E12-F004B XFER switch.
  - ☐ \* RHR HX INL VLV E12-F047B XFER switch.

**Standard:** Candidate transfers the above listed switches to EMER.  
**Cue:** Switches have been transferred.  
**Notes:** The Transfer switch for E12-F006B is NOT critical. This step ensures the Remote Shutdown Panel has sole control of these valves.

**This step may be performed at any time prior to operating the valves. This is acceptable.**

**This is Step 3.11 of the ONEP.**

☐ Open or check open the following valves:

- ☐ SUPP POOL SUCT VLV E12-F004B.
- ☐ RHR HX INL VLV E12-F047B.
- ☐ RHR HX B OUTL VLV E12-F003B.

**Standard:** Candidate observes the above listed valves are open.

**Cue:** All of the valves indicate Red light on, green light off.

**Notes:** These valves are already in their normal lineup.

☐\* Close E12-F048B RHR HX B BYP VLV.

**Standard:** Candidate closes E12-F048B.

**Cue:** Red light on, green light off.

**Notes:** This is a JOG handswitch.

☐\* Start RHR Pump 'B' E12-C002B.

**Standard:** Candidate starts RHR Pump 'B'.

**Cue:** Red light on, green light off.

**Notes:**

☐\* Open E12-F024B RHR B TEST RTN TO SUPP POOL.

**Standard:** Candidate opens E12-F024B.

**Cue:** Green light on, red light off.

**Notes:**

Task Standard(s):

RHR 'B' is operating in Suppression Pool Cooling with E12-F048B full closed and E12-F003B full open and SSW 'B' in service to the RHR 'B' Heat Exchangers.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_

## **C61 Task 1:     Startup RHR in Suppression Pool Cooling from the Remote Shutdown Panels**

Follow-Up Questions & Answers:

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## **Startup RHR in Suppression Pool Cooling from the Remote Shutdown Panels**

**Give this page to the student**

### Initial Condition(s):

- The Main Control Room has been abandoned due to noxious fumes and control of the plant has been established at the Remote Shutdown Panels.
- The plant is shutdown and RCIC and SRVs are being used to control RPV water level and pressure.
- Standby Service Water 'B' is in Standby per the SOL.

### Initiating Cue(s):

- You have been directed to place RHR 'B' in Suppression Pool Cooling with maximum cooling per the ONEP.

**TRAINING PROGRAM:**

OPERATIONS TRAINING
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**\*LESSON PLAN TITLE:**

ROTATE OPERATING CRD PUMPS
----------------------------

**APPROXIMATE TIME REQUIRED:** 15 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

New Material

Minor Revision

Major Revision

**REASON FOR REVISION:**

New JPM

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_ )

<b>Prepared By:</b>		
	Preparer	Date
<b>Reviewed By:</b>		
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>		
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>		
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>		
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet      ENS      ENN      Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

1. Standard cues for valve operation:
  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
    - 2) "Full closed" = "red light off, green light on"
  - b. Manual valves
    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
    - 2) "Full closed" = "you feel resistance in the clockwise direction"
2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
3. Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.
4. Obtain Shift Management's permission before opening any control panel door or instrument cover.
5. It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.
6. Consideration of electrical safety must be made during the performance of certain tasks involving electrical circuits and circuit breakers. The performer should be aware that working on or near energized equipment requires, at a minimum, wearing 100% cotton clothing and low voltage (Class 0) gloves while removing or securing shock hazards such as chains, jewelry, watches and metal-framed eyeglasses. Operating or racking circuit breakers may require additional PPE. Details can be found in Att. 2 of the Electrical Safety Rulebook and General Operating procedure 04-S-04-2 (Operation of Electrical Circuit Breakers)

**Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.**

## **C11 Task 18:        Rotate Operating CRD Pumps**

Setting: Simulator  
Type: RO  
Task: CRO-C11(1)-008  
K&A: 201001 2.1.30: 3.9/3.4; A4.01: 3.1/3.1; A4.03: 2.9/2.8; A2.01: 3.2/3.3  
295022 AA1.01: 3.1/3.2  
Safety Function: Reactivity (1)  
Time Required: 15 minutes  
Time Critical: No  
Faulted: **YES**  
Performance: Perform  
Reference(s): SOI 04-1-01-C11-1 section 5.5; ONEP 05-1-02-IV-1 section 2.1 & 3.1  
Handout(s): SOI 04-1-01-C11-1  
# Manipulations: 8  
# Critical Steps: 8  
Group #: 2

### Simulator Setup/Required Plant Conditions:

- 1 Any power IC
- 2 Insert Malfunction **c11028b** on **Trigger 1**

### Safety Concerns:

- 3 None

Equipment Needed: None.

### Initial Condition(s):

- The plant is operating at rated conditions.
- Electrical Maintenance has requested CRD Pump 'A' be secured to allow performance of Preventive Maintenance.
- CRD Pump 'B' has been verified to have cooling water and normal oil levels in the oil sump, motor and gearbox oil.
- The Auxiliary Oil Pump for CRD pump 'B' has been continuously running since plant startup.

### Initiating Cue(s):

- You have been directed to rotate CRD pumps to CRD Pump 'B' operating and CRD Pump 'A' secured. The Auxiliary Building Operator is standing by at the CRD Pumps.

## **C11 Task 18:      Rotate Operating CRD Pumps**

### **Notes**

1. None.

**Task Overview:** This task is to rotate CRD pumps from H13-P601 per the SOI. Once the first pump is secured and flows re-established, the CRD pump that was just started will trip requiring implementation of the Immediate Operator Actions of the Control Rod and Drive Malfunctions ONEP 05-1-02-IV-1 to restart the other CRD pump and restore flow to the CRD System.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

- ☐\*      *Close Discharge valve C11-F217B.*  
**Standard:** Candidate contacts the local operator to close C11-F217B.  
**Cue:** C11-F217B is closed.  
**Notes:** Simulator Operator toggle Remote Function C11031 to 0 with a 1 minute ramp time.
  
- ☐      Slowly open pump vent C11-F109B and reclose when vented.  
**Standard:** Candidate contacts the local operator to vent pump via C11-F109B.  
**Cue:** CRD pump 'B' has been vented with a solid stream of water via C11-F109B and C11-F109B is closed.  
**Notes:** Candidate may Contact local operator to inform them of the coming pump start and to Slowly open the pump discharge valve C11-F217B upon the start. If so acknowledge the transmission.
  
- ☐\*      *Start CRD PMP B on H13-P601.*  
**Standard:** Candidate starts CRD Pump 'B'.  
**Cue:**  
**Notes:**

- \* Slowly open discharge valve C11-F217B.  
**Standard:** Candidate contacts the local operator to slowly open C11-F217B.  
**Cue:** When the simulator operator has completed opening C11-F217B inform the candidate the valve is open and the pump is running normally.  
**Notes:** Simulator Operator toggle Remote Function C11031 to 100 with a 1 minute ramp time.
- Check CRD System Flow has stabilized between 54 to 66 gpm.  
**Standard:** Candidate observes flow on C11-R606 or C11-R600 on H13-P601 section 22B.  
**Cue:**  
**Notes:**
- Slowly close Discharge valve C11-F217A.  
**Standard:** Candidate contacts the local operator to close C11-F217A.  
**Cue:** C11-F217A is closed.  
**Notes:** Simulator Operator toggle Remote Function C11030 to 0 with a 1 minute ramp time.
- \* Stop CRD Pump 'A' at H13-P601.  
**Standard:** Candidate stops CRD Pump 'A'.  
**Cue:**  
**Notes:** The candidate should observe the Auxiliary Oil Pump automatically start.
- \* Slowly open discharge valve C11-F217A.  
**Standard:** Candidate contacts the local operator to slowly open C11-F217A.  
**Cue:** When the simulator operator has completed opening C11-F217A inform the candidate the valve is open.  
**Notes:** Simulator Operator toggle Remote Function C11030 to 100 with a 1 minute ramp time.

As report is being given that C11-F217A is full open, ACTIVATE TRIGGER 1 malfunction c11028b for CRD Pump 'B' trip.

- ☐ Observes trip of CRD Pump 'B' and informs Control Room Supervisor (CRS) of the trip.

**Standard:** Candidate observes pump trip and informs CRS.

**Cue:** Inform candidate to perform the actions in response to the CRD pump trip.

**Notes:**

The candidate may take the handswitch for CRD Pump 'B' to Stop to clear the CRD PMP TRIP annunciator, this is acceptable.

- ☐\* Adjust CRD SYS FLO CONT to zero.

**Standard:** Candidate adjusts CRD FLO CONT C11-R600 output to zero using either the thumbwheel to 0 or placing the controller in MANUAL and closing the controller output to 0.

**Cue:**

**Notes:**

- ☐\* Start CRD PMP A on H13-P601.

**Standard:** Candidate starts CRD Pump 'A'.

**Cue:**

**Notes:**

- ☐\* When Charging Pressure is normal, Slowly adjusts CRD SYS FLO CONT to 54-66 gpm.

**Standard:** Candidate slowly adjusts CRD FLO CONT C11-R600 output to zero using either the thumbwheel or placing the controller in MANUAL and opening the controller output to achieve 54 – 66 gpm CRD SYS FLO.

**Cue:**

**Notes:**

Task Standard(s):

CRD Pump 'A' is operating at 54 – 66 gpm CRD System Flow and the Control Room Supervisor has been informed.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

## **C11 Task 18:      Rotate Operating CRD Pumps**

Follow-Up Questions & Answers:

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## **Rotate Operating CRD Pumps**

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### Initial Condition(s):

- The plant is operating at rated conditions.
- Electrical Maintenance has requested CRD Pump 'A' be secured to allow performance of Preventive Maintenance.
- CRD Pump 'B' has been verified to have cooling water and normal oil levels in the oil sump, motor and gearbox oil.
- The Auxiliary Oil Pump for CRD pump 'B' has been continuously running since plant startup.

### Initiating Cue(s):

- You have been directed to rotate CRD pumps to CRD Pump 'B' operating and CRD Pump 'A' secured. The Auxiliary Building Operator is standing by at the CRD Pumps.

**TRAINING PROGRAM:****OPERATIONS TRAINING****\*LESSON PLAN TITLE:****STARTUP AN IDLE RECIRCULATION PUMP AT POWER****APPROXIMATE TIME REQUIRED:** 30 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

New Material

Minor Revision

Major Revision

**REASON FOR REVISION:**

New JPM

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_ )

<b>Prepared By:</b>	_____	_____
	Preparer	Date
<b>Reviewed By:</b>	_____	_____
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>	_____	_____
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>	_____	_____
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>	_____	_____
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet      ENS      ENN      Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

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  - b. Manual valves
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2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
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## **B33 Task 4:      Startup an Idle Recirculation Pump at Power**

Setting: Simulator  
Type: RO  
Task: CRO-B33(1)-002; CRO-B33(1)-004  
K&A: 202001 2.1.30: 3.9/3.4; A4.01: 3.7/3.7; A2.26: 2.9/3.1; A3.01: 3.1/3.0  
295001 AA1.01: 3.5/3.6  
Safety Function: Heat Removal (4); Reactivity (1)  
Time Required: 30 minutes  
Time Critical: No  
Faulted: **YES**  
Performance: Perform  
Reference(s): SOI 04-1-01-B33-1 section 6.2 & 6.3; ONEP 05-1-02-III-3 section 2.1a & 3.2; ARI 04-1-02-1H13-P680 3A-D9; E-1163-07  
Handout(s): SOI 04-1-01-B33-1 & ONEP 05-1-02-III-3  
# Manipulations: 7  
# Critical Steps: 6  
Group #: 2

### Simulator Setup/Required Plant Conditions:

- 1 IC-12 < 30% Power
- 2 Insert Malfunction **rr196b**
- 3 Ensure Recirc Loop 'A' flow is < 22,300 gpm.
- 4 Ensure Recirc Loop 'B' Suction and Discharge valves are open and the Recirc Pump circuit breakers are in alignment for start.

### Safety Concerns:

- 5 None

Equipment Needed: None.

Initial Condition(s):

- The plant is operating at 21 % Power.
- Recirc Pump 'A' is operating in Slow Speed.
- Recirc Pump 'B' is secured following Flow Control Valve problems.
- The problems with Recirc Flow Control Valve 'B' have been corrected.
- Seal Purge to Recirc Pump 'B' has been verified at normal pressures.
- Reactor Engineering has verified the plant is operating at < 75% Rod Line and that FCBB is < 1.0.
- Recirc Flow Control Valve is at the MIN ED position.
- Unit 1 Instrument Air Compressor is in lead.
- FCTR has been placed in the SETUP mode.
- Recirc Loop 'A' is operating < 22,300 gpm.
- ALL annunciators associated with the 'B' Hydraulic Power Unit and cooling to Recirc Pump 'B' are clear.
- Chemistry and Radiation Protection have been notified of the Recirc Pump start.
- The Idle Loop Startup Surveillance 06-OP-1B33-V-0005 was completed satisfactorily 1 minute ago.
- Reactor Water level has been raised to 40 inches.
- All Recirc Pump Temperatures are normal.

Initiating Cue(s):

- You have been directed to start Reactor Recirculation Pump 'B' in slow speed per the SOI.

## **B33 Task 4:     Startup an Idle Recirculation Pump at Power**

### **Notes**

1. None.

**Task Overview:** This task is to startup an idle Reactor Recirculation Pump with the plant operating at power per the SOI. As the pump starts a problem will occur causing an Incomplete Start Sequence actuation to trip the pump back to off. ONEP 05-1-02-III-3 will be entered and checked. Then once repairs are complete, the task will be to reset the incomplete start sequence circuitry and complete starting the Recirc Pump.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

If asked, cue all local LFMG Key lock wswitches are in Normal.

- ☐ Verify the following circuit breaker lineup:
  - ☐ CB3B, RECIRC PMP B FDR 252-1205B closed.
  - ☐ CB4B, RECIRC PMP B FDR 252-1205C closed.
  - ☐ CB1B, RECIRC PMP B FDR 152-1411 open.
  - ☐ CB2B, RECIRC PMP B FDR 252-1205A open.
  - ☐ CB5B, RECIRC PMP B FDR 252-1205 open.

**Standard:** Candidate checks breaker positions.

**Cue:**

**Notes:**

- ☐\* *Raise the tap setting on BOP Transformer supplying 12HE to raise bus voltage to  $\approx 7.2$  KV on H13-P807.*

**Standard:** Candidate raises bus voltage on 12HE by raising the taps on BOP Transformer 11B.

**Cue:**

**Notes:**

- ☐\* Depress RELEASE pushbutton on RECIRC PMP B FDR 252-1205 STOP/STOP LOCK pushbutton on H13-P680 section 3C.  
**Standard:** Candidate depresses RELEASE pushbutton for Recirc Pump 'B'.  
**Cue:**  
**Notes:**

- ☐\* Start RECIRC PMP B by depressing the START pushbutton on the RECIRC PMP B TRANS TO LFMG/START handswitch on H13-P680.  
**Standard:** Candidate starts Recirc Pump 'B'.  
**Cue:**  
**Notes:**

**Notes: Simulator Operator ensure malfunction rr196b goes active.**

- ☐ Observes the following:
- ☐ CB5B, RECIRC PMP B FDR 252-1205 close. **(Will not occur)**
  - ☐ CB1B, RECIRC PMP B FDR 152-1411 close.
  - ☐ RECIRC PMP B AMPS increase. **(Will not occur)**
  - ☐ RECIRC PMP B RPM increase. **(Will not occur)**

**Standard:** Candidate observes the above actions occurring.  
**Cue:**

- ☐ Check CB-5B, RECIRC PMP B FDR 252-1205 opens when pump speed reaches 1700 RPM and pump speed drops.  
**Standard:** Candidate observes CB-5B open.  
**Cue:**  
**Notes: 252-1205 failed to close causing the Incomplete Start Sequence.**
- ☐ Check CB-2B, RECIRC PMP B FDR 252-1205A closes when pump speed reaches 360 - 450 RPM.  
**Standard:** Candidate observes CB-2B fails to close and reports to the Control Room Supervisor and observes the Incomplete Start annunciator H13-P680 3A-D9 has alarmed.  
**Cue: Acknowledge as CRS the annunciator.**  
**Notes: Simulator Operator remove malfunction.**
- ☐ Checks the Alarm Response Instruction (ARI) for H13-P680 3A-D9 RECIRC PMP B AUTO XFER INC.  
**Standard:** Candidate reviews the ARI.  
**Cue: Acknowledge as CRS the ARI actions.**  
**Notes:**

- Observes the following:
  - CB5B, RECIRC PMP B FDR 252-1205 open.
  - CB1B, RECIRC PMP B FDR 152-1411 open.
  - CB2B, RECIRC PMP B FDR 252-1205A open.

**Standard:** Candidate observes the above indications.

**Cue:**

**Notes:**

- Checks the Off Normal Event Procedure (ONEP) 05-1-02-III-3, Reduction in Recirculation System Flow Rate.

**Standard:** Candidate reviews the ONEP and verifies Power to Flow indications

**Cue:** Acknowledge as CRS the ONEP actions.

**Notes:** If Candidate asks about closing B33-F067B RECIRC PMP B Discharge Valve, cue the candidate NOT to close B33-F067B since the pump failed to even start to move.

**NOTE:** CUE the Candidate a problem was found during the investigation in circuit breaker 252-1205 CB-5B a blown 15 amp fuse in the closing circuit. The fuse has been replaced and ready for a restart. As CRS cue the candidate to Recover the Incomplete Start Sequence and complete the restart of Recirc Pump 'B'.

- \* Depress STOP or STOP LOCK pushbutton on RECIRC PMP B FDR 252-1205 STOP/STOP LOCK pushbutton on H13-P680 section 3C.

**Standard:** Candidate depresses STOP or STOP LOCK pushbutton for Recirc Pump 'B'.

**Cue:**

**Notes:** Section 6.3 of SOL. If the STOP LOCK pushbutton is used the RELEASE pushbutton will also have to be depressed.



**The candidate may review indications prior to starting the Recirc Pump, this is acceptable.**

- ☐\* Start RECIRC PMP B by depressing the START pushbutton on the RECIRC PMP B TRANS TO LFMG/START handswitch on H13-P680.  
**Standard:** Candidate starts Recirc Pump 'B'.

**Cue:**

**Notes:**

- ☐ Observes the following:

- ☐ CB5B, RECIRC PMP B FDR 252-1205 close.
- ☐ CB1B, RECIRC PMP B FDR 152-1411 close.
- ☐ RECIRC PMP B AMPS increase.
- ☐ RECIRC PMP B RPM increase

**Standard:** Candidate observes the above actions occurring.

**Cue:**

**Notes:**

- ☐ Check CB-5B, RECIRC PMP B FDR 252-1205 opens when pump speed reaches 1700 RPM and pump speed drops.

**Standard:** Candidate observes CB-5B open.

**Cue:**

**Notes:**

- ☐ Check CB-2B, RECIRC PMP B FDR 252-1205A closes when pump speed reaches 360 - 450 RPM.

**Standard:** Candidate observes CB-2B close.

**Cue:**

**Notes:**

- ☐ Lower the tap setting on BOP Transformer supplying 12HE to lower bus voltage to  $\approx 7.0$  KV on H13-P807.

**Standard:** Candidate lowers bus voltage on 12HE by lowering the taps on BOP Transformer 11B.

**Cue:**

**Notes:**

- ☐ Check proper operation of Recirc Pump and Jet Pumps.

**Standard:** Candidate checks indications on H13-P680.

**Cue:**

**Notes:**

- ☐\* Slowly open Recirc Flow Control Valve 'B' to full open.  
**Standard:** Candidate opens Recirc Flow Control Valve 'B'.  
**Cue:**  
**Notes:**

**Evaluator may at any time stop the JPM at this point due to the long duration for opening the flow control valve.**

Task Standard(s):

Recirc Pump 'B' is operating in slow speed with the Recirc Flow Control Valve being opened to full open.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_

## **B33 Task 4:     Startup an Idle Recirculation Pump at Power**

Follow-Up Questions & Answers:

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# **Startup an Idle Recirculation Pump at Power**

## **Give this page to the student**

### **Initial Condition(s):**

- The plant is operating at 21 % Power.
- Recirc Pump 'A' is operating in Slow Speed.
- Recirc Pump 'B' is secured following Flow Control Valve problems.
- The problems with Recirc Flow Control Valve 'B' have been corrected.
- Seal Purge to Recirc Pump 'B' has been verified at normal pressures.
- Reactor Engineering has verified the plant is operating at < 75% Rod Line and that FCBB is < 1.0.
- Recirc Flow Control Valve is at the MIN ED position.
- Unit 1 Instrument Air Compressor is in lead.
- FCTR has been placed in the SETUP mode.
- Recirc Loop 'A' is operating < 22,300 gpm.
- ALL annunciators associated with the 'B' Hydraulic Power Unit and cooling to Recirc Pump 'B' are clear.
- Chemistry and Radiation Protection have been notified of the Recirc Pump start.
- The Idle Loop Startup Surveillance 06-OP-1B33-V-0005 was completed satisfactorily 1 minute ago.
- Reactor Water level has been raised to 40 inches.
- All Recirc Pump Temperatures are normal.

### **Initiating Cue(s):**

- You have been directed to start Reactor Recirculation Pump 'B' in slow speed per the SOI.

**TRAINING PROGRAM:**

OPERATIONS TRAINING
---------------------

**\*LESSON PLAN TITLE:**

OPEN MAIN STEAM ISOLATION VALVES
----------------------------------

**APPROXIMATE TIME REQUIRED:** 15 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

New Material
Minor Revision
Major Revision

**REASON FOR REVISION:**

Revise JPM to New format and update for NRC Exams. This JPM replaces GG-1-JPM-LOR-B2100.02

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>		
	Preparer	Date
<b>Reviewed By:</b>		
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>		
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>		
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>		
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet
ENS
ENN
Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

1. Standard cues for valve operation:
  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
    - 2) "Full closed" = "red light off, green light on"
  - b. Manual valves
    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
    - 2) "Full closed" = "you feel resistance in the clockwise direction"
2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
3. Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.
4. Obtain Shift Management's permission before opening any control panel door or instrument cover.
5. It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.
6. Consideration of electrical safety must be made during the performance of certain tasks involving electrical circuits and circuit breakers. The performer should be aware that working on or near energized equipment requires, at a minimum, wearing 100% cotton clothing and low voltage (Class 0) gloves while removing or securing shock hazards such as chains, jewelry, watches and metal-framed eyeglasses. Operating or racking circuit breakers may require additional PPE. Details can be found in Att. 2 of the Electrical Safety Rulebook and General Operating procedure 04-S-04-2 (Operation of Electrical Circuit Breakers)

**Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.**

## **B21 Task 1:      Open Main Steam Isolation Valves**

Setting: Simulator  
Type: RO  
Task: CRO-B21-001  
K&A: 239001 A4.01: 4.2/4.0; 2.1.30: 3.9/3.4  
223002 A4.01: 3.6/3.5  
Safety Function: Pressure (3) & Containment (5)  
Time Required: 15 minutes  
Time Critical: No  
Faulted: No  
Performance: Perform  
Reference(s): SOI 04-1-01-B21-1 section 4.3; 04-1-01-M71-1 section 5.7  
Handout(s): SOI 04-1-01-B21-1; 04-1-01-M71-1  
# Manipulations: 14  
# Critical Steps: 14  
Group #: 2/1

### Simulator Setup/Required Plant Conditions:

- 1 Simulator in IC - 2
- 2 Reactor Coolant Temperature < 200 deg F
- 3 No Condenser Vacuum
- 4 B21-F098A, B, C, D are OPEN.
- 5 MSIVs are closed with handswitches in CLOSE.
- 6 Condenser Vacuum Bypass switches are NORM.
- 7 MSIV DR VLV TRIP INIT annunciator H13-P601 19A-E4 is in alarm.

Safety Concerns: None

Equipment Needed: None.

Initial Condition(s):

- The plant is in Mode 4.
- All Control Rods are fully inserted.
- Preparations are being made for Reactor Startup.
- The Main Steam Line Shutoff Valves B21-F098A, B, C, & D are open.
- The Main and Reheat Steam System is ready for operation.
- Reactor Pressure is 0 psig.
- Turbine Pressure set is at 150 psig.
- Reactor Water Level is at > 40 inches.
- MSIVs have been closed for 20 minutes.

Initiating Cue(s):

- You have been directed to open the Main Steam Isolation Valves (MSIVs) per the SOI.



## **B21 Task 1:     Open Main Steam Isolation Valves**

### **Notes**

1. This JPM is a LOW power evolution.

**Task Overview:** This task is to open the Main Steam Isolation Valves (MSIVs) with the plant shutdown and depressurized per the SOI.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

Reset NSSSS isolation signal to allow the MSIVs to be opened.

- ☐ Checks the 'A' and 'B' pilot solenoid valve status lights on H13-P622 for B21-F022A, B, C, D are OFF.  
**Standard:** Candidate contacts an operator to verify the 'A' and 'B' pilot solenoid valve status lights on H13-P622 for B21-F022A, B, C, D are OFF.  
**Cue:** Status lights are off.  
**Notes:**
- ☐ Checks the 'A' and 'B' pilot solenoid valve status lights on H13-P623 for B21-F028A, B, C, D are OFF.  
**Standard:** Candidate contacts an operator to verify the 'A' and 'B' pilot solenoid valve status lights on H13-P623 for B21-F028A, B, C, D are OFF.  
**Cue:** Status lights are off.  
**Notes:**
- ☐ Checks the status lights for Inboard Logic tests are are OFF on H13-P622.  
**Standard:** Candidate contacts an operator to verify the status lights for Inboard Logic tests are are OFF on H13-P622.  
**Cue:** Status lights are off.  
**Notes:**
- ☐ Checks the status lights for Outboard Logic tests are are OFF on H13-P623.  
**Standard:** Candidate contacts an operator to verify the status lights for Outboard Logic tests are are OFF on H13-P623.  
**Cue:** Status lights are off.  
**Notes:**
- ☐\* Place the NSSSS Div 1, 2, 3, 4 CNDSR LO VAC BYP switches in BYPASS.  
**Standard:** Candidate places the NSSSS CNDSR VAC BYP switches to BYPASS.  
**Cue:**  
**Notes:** Switches are on H13-P601 sections 18B and 19B.

- ☐ Place MSL A, B, C, and D DRWL INBD ISOL and MSL A, B, C, and D CTMT OTBD ISOL handswitches to CLOSE position.  
**Standard:** Candidate verifies the handswitches for the MSIVs are all in the close position.  
**Cue:**  
**Notes:** These handswitches are on H13-P601 section 18C and 19C and should already be in the close position.
  
- ☐\* Depress the NSSSS INBD ISOL RESET and NSSSS OTBD ISOL RESET pushbuttons.  
**Standard:** Candidate depresses the NSSSS INBD ISOL RESET and NSSSS OTBD ISOL RESET pushbuttons.  
**Cue:**  
**Notes:** These pushbuttons are on H13-P601 sections 18B and 19B. MSIV DR VLV TRIP INIT annunciator H13-P601 19A-E4 will clear.
  
- ☐ Check that INBD MSLD Logic Test and OTBD MSLD Logic Test status lights on H13-P622 and P623 are ON  
**Standard:** Candidate checks that INBD MSLD Logic Test and OTBD MSLD Logic Test status lights on H13-P622 and P623 are ON.  
**Cue: Lights are on.**  
**Notes:**
  
- ☐ Check that A and B pilot solenoid valve status light for 1B21-F022A, B, C, D and 1B210F028A, B, C, D on H13-P622 and P623 are ON.  
**Standard:** Candidate checks that A and B pilot solenoid valve status light for 1B21-F022A, B, C, D and 1B210F028A, B, C, D on H13-P622 and P623 are ON.  
**Cue: Lights are on.**  
**Notes: Lights are on H22-P622 and P623 in the Control Room Back Panels and Upper Control Room.**

**If asked MSIVs have been closed for 20 minutes and NO differential pressure exists.**

**If the candidate asks this, a followup question may be added to have the candidate point out indicators that could be used to determine differential pressure between the reactor and main steam lines.**

Opening the MSIVs.

- ☐\* Open Outboard MSIVs 1B21-F028A, B, C, D by placing MSL A, B, C, D CTMT OTBD ISOL handswitches to AUTO.  
**Standard:** Candidate opens the outboard MSIVs B21-F028A, B, C, D.  
**Cue:**

**Notes:** Valves are controlled from H13-P601 section 19C. Order of valve opening is not critical.

- ☐ Verify differential pressure across the Inboard MSIVs is 0.  
**Standard:** Candidate observes Reactor Pressure and Main Steam Line Pressure and notes the differential pressure is 0 psig.  
**Cue:**  
**Notes:** This can be accomplished using multiple indications in the control room and PDS. One method would be to look at the wide range Post Accident pressure recorders on H13-P601 and the Main Steam Line Pressure digital indicator on H13-P680 section 9D.

- ☐\* Open Inboard MSIVs 1B21-F022A,B, C, D by placing MSL A, B, C, D DRWL INBD ISOL han switches to AUTO.  
**Standard:** Candidate opens the inboard MSIVs B21-F022A, B, C, D.  
**Cue:**  
**Notes:** Valves are controlled from H13-P601 section 18C. Order of valve opening is not critical.

Task Standard(s):

Main Steam Isolation Valves Inboard and Outboard are open.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_

## **B21 Task 1:     Open Main Steam Isolation Valves**

Follow-Up Questions & Answers:

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Comments:

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# Open Main Steam Isolation Valves

**Give this page to the student**

## Initial Condition(s):

- The plant is in Mode 4.
- All Control Rods are fully inserted.
- Preparations are being made for Reactor Startup.
- The Main Steam Line Shutoff Valves B21-F098A, B, C, & D are open.
- The Main and Reheat Steam System is ready for operation.
- Reactor Pressure is 0 psig.
- Turbine Pressure set is at 150 psig.
- Reactor Water Level is at > 40 inches.
- MSIVs have been closed for 20 minutes.

## Initiating Cue(s):

- You have been directed to open the Main Steam Isolation Valves (MSIVs) per the SOI.

**TRAINING PROGRAM:****OPERATIONS TRAINING****\*LESSON PLAN TITLE:****RESET UNDERVOLTAGE LOCKOUTS ON BOP BUSES****APPROXIMATE TIME REQUIRED:** 15 Minutes**PREREQUISITES:** NONE**SUPPORTING LESSONS:** NONE

New Material

Minor Revision

Major Revision

**REASON FOR REVISION:**

New JPM

**REVIEW / APPROVAL (Print Name):** Electronic Approval (TEAR # \_\_\_\_\_)

<b>Prepared By:</b>	_____	_____
	Preparer	Date
<b>Reviewed By:</b>	_____	_____
	Technical Reviewer (e.g., SME, line management)	Date
<b>Instructional Adequacy Determined By:</b>	_____	_____
	ITPL (Rev 0); Qualified Instructor (All other revisions)	Date
<b>Approved By:</b>	_____	_____
	**Discipline Training Supervisor	Date
<b>Effective Date:</b>	_____	_____
	*Date	

\*\*Indicates that the LP has been reviewed by the Training Supervisor for inclusion of Management Expectations and items referenced on the Training Development Review Worksheet

**FLEET/REGIONAL PROGRAM CONCURRENCE:**

Fleet      ENS      ENN      Not Applicable

ANO		PNPS	
CNPS		RBS	
ECH		VY	
GGNS		WF3	
IPEC		WPO	
JAF			

\* Indexing Information

## **Generic Instructions**

1. Standard cues for valve operation:
  - a. MOVs:
    - 1) "Full open" = "red light on, green light off"
    - 2) "Full closed" = "red light off, green light on"
  - b. Manual valves
    - 1) "Full open" = "you feel resistance in the counter-clockwise direction"
    - 2) "Full closed" = "you feel resistance in the clockwise direction"
2. The Evaluator should indicate simulated analog gauge readings by pointing a pen or equivalent to the intended place on the gauge.
3. Other methods of simulating control, operation and data collection is at the discretion of the Evaluator.
4. Obtain Shift Management's permission before opening any control panel door or instrument cover.
5. It is expected that the candidate shall locate controlled copies of any required procedures and describe how copies of these procedures would be prepared for use in the field. Only at this time should the evaluator give the candidate previously prepared copies of the procedure(s). This entire procedure need only be performed or simulated once during the entire exam. These activities are not required for JPMs conducted in the Simulator.
6. Consideration of electrical safety must be made during the performance of certain tasks involving electrical circuits and circuit breakers. The performer should be aware that working on or near energized equipment requires, at a minimum, wearing 100% cotton clothing and low voltage (Class 0) gloves while removing or securing shock hazards such as chains, jewelry, watches and metal-framed eyeglasses. Operating or racking circuit breakers may require additional PPE. Details can be found in Att. 2 of the Electrical Safety Rulebook and General Operating procedure 04-S-04-2 (Operation of Electrical Circuit Breakers)

**Under no circumstances is any candidate allowed to operate any equipment outside the simulator without the permission of the Evaluator and Shift Management.**

## **R21 Task 8:      Reset Undervoltage Lockouts on BOP Buses**

Setting: Plant (Inside CAA)  
Type: NLO  
Task: NOB-R21-008  
K&A: 262001 2.1.30: 3.9/3.4; A2.11: 3.2/3.6  
295003 AA1.01: 3.7/3.8  
Safety Function: Electrical (6)  
Time Required: 15 minutes  
Time Critical: No  
Faulted: **YES**  
Performance: Simulate  
Reference(s): ONEP 05-1-02-I-4 section 3.3.11e  
Handout(s): ONEP 05-1-02-I-4 section 3.3.11e  
# Manipulations: 6  
# Critical Steps: 6  
Group #: 1

### Simulator Setup/Required Plant Conditions:

- 1 Area is accessible

### Safety Concerns:

- 2 Do NOT operate plant equipment.

Equipment Needed: None.

### Initial Condition(s):

- BOP Transformer 11B has locked out on Sudden Pressure.
- BOP Buses 12HE and 13AD have lost power and power has been restored by the Control Room Operator from BOP Transformers 12B and 12A.
- The plant continues to operate at 21% power.

### Initiating Cue(s):

- You have been directed to reset the Bus Under voltage Lockouts for buses 12HE and 13AD.



## **R21 Task 8:     Reset Undervoltage Lockouts on BOP Buses**

### **Notes**

1. Candidate will have the choice of which bus to reset first. The sequence of buses or the individual lockout devices on the bus is NOT critical. Indicating that the candidate would reset the Bus Overcurrent Lockouts would be a safety violation resulting in failing the JPM.

**Task Overview:** This task is to locally reset the BOP Bus Undervoltage Lockouts following a degraded bus voltage. This task is performed to allow large motors supplied by the buses to be restarted. GGNS Plant Scram February 11, 2005 required this evolution had to be performed.

**Tasks:** Critical tasks are underlined, italicized, and denoted by (\*).

**Bus Sequencing is NOT critical.**

- ☐     Locate 4.16KV bus 13AD.  
**Standard:** Candidate locates bus 13AD.  
**Cue: None.**  
**Notes: Area 4 133' elevation**
  
- ☐\*     *Reset Bus Undervoltage Lockout Relays on Auxiliary cubicle.*  
**Standard:** Candidate indicates would rotate handle of Lockout device clockwise until it clicks vertical.
  - ☐\*     *Relay 186-BV1 reset.*
  - ☐\*     *Relay 186-BV2 reset.*
  - ☐\*     *Relay 186-BV3 reset.*
  - ☐\*     *Relay 186-BV4 reset.*

**Cue: For each relay, cue the candidate the handle clicks vertical.**  
**Notes: BUV Relays have Red and White labels under them.**
  
- ☐     Observes white continuity light is on.  
**Standard:** Candidate observes white continuity light is on.  
**Cue: White light is illuminated.**  
**Notes: White light will come on when the last relay is reset.**

**Bus Sequencing is NOT critical.**

- ☐ Locate 6.9KV bus 12HE.  
**Standard:** Candidate locates bus 12HE.  
**Cue:** None.  
**Notes:** Area 4 113' elevation
- ☐\* *Reset Bus Undervoltage Lockout Relays on Auxiliary cubicle.*  
**Standard:** Candidate indicates would rotate handle of Lockout device clockwise until it clicks vertical.
  - ☐\* *Relay 286-BV1 reset.*
  - ☐\* *Relay 286-BV2 reset.*

**Cue:** For relay 286-BV1, cue the candidate the handle clicks vertical.  
For relay 286-BV2, cue the candidate the handle will NOT remain locked in the vertical position.

**Notes:** BUV Relays have Red and White labels under them.

If candidate indicates they would reset 286-B1 and 286-B2, this is **INCORRECT**. These are the Bus Overcurrent Lockouts and require Electrical Department investigation for their tripping and would create a safety hazard if reset without knowing and correcting the cause and constitutes a failure of the JPM.

- ☐ Observes white continuity light is OFF.  
**Standard:** Candidate observes white continuity light is OFF.  
**Cue:** White light is extinguished.  
**Notes:** White light will NOT come because one relay fails to reset.
- ☐ Notifies the Control Room Supervisor of the failure of 12HE to reset.  
**Standard:** Candidate notifies the Control Room Supervisor of the failure of 12HE to reset.  
**Cue:** Acknowledge the failure and inform the candidate electricians will be dispatched to investigate the problem.  
**Notes:** There is no further action an operator can take until electricians have determined and corrected the problem. At this point the JPM is terminated.

Followup question, if desired:

**How does the failure of this lockout relay to reset affect the equipment supplied by this bus?**

**Answer:**

**The only components affected are the 'B' Recirculation Pump and 'B' Circulating Water Pump. They are locked out and cannot be started. All other components have power available.**

Task Standard(s):

Bus 13AD has its Bus Undervoltage Lockout relays reset and Bus 12HE is NOT completely reset and the Control Room Supervisor has been informed.

Name: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
\_\_\_\_\_

## **R21 Task 8:     Reset Undervoltage Lockouts on BOP Buses**

Follow-Up Questions & Answers:

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Comments:

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## **Reset Undervoltage Lockouts on BOP Buses**

**Give this page to the student**

### Initial Condition(s):

- BOP Transformer 11B has locked out on Sudden Pressure.
- BOP Buses 12HE and 13AD have lost power and power has been restored by the Control Room Operator from BOP Transformers 12B and 12A.
- The plant continues to operate at 21% power.

### Initiating Cue(s):

- You have been directed to reset the Bus Under voltage Lockouts for buses 12HE and 13AD.


**CLEARANCE****CLEARANCE INSTALLATION FORM**

<b>COMPONENT TO BE TAGGED:</b> 1N23C001A HEATER DRAIN PUMP 'A'		<b>PUMP</b>	<b>CLEARANCE NUMBER: GG-05-xx</b>		
<b>PURPOSE OF CLEARANCE:</b> Replace pump seals on Heater Drain Pump 'A'.			<b>DESIRE</b>		
<b>SPECIAL INSTRUCTIONS:</b>			<b>DRAW XREF: M1055C; E1142-05, 06, 11, 19</b>		
<b>IMPACT: PUMP SEAL WILL BE REPLACED BREACHING THE INTERNALS OF PUMP WHERE HIGH PRESSURE FLUID IS PRESENT. PUMP IS NEEDED TO SUPPORT FULL POWER OPERATION AND M EFFICIENCY.</b> USE APPROPRIATE ELECTRICAL SAFETY GEAR WHEN RACKING OUT BREAKERS REMOVE CAP AND CONNECT VENT HOSE TO N23-FX528 AND ROUTE TO DRAIN.					
<b>PREPARED BY: M. RASCH</b> 1200		<b>DATE/TIME: 8/15/05</b>	<b>REVIEWED BY: S. HUMPHRIES</b>		
<b>AUTHORIZED (SS):</b>		<b>DATE/TIME:</b>	<b>AUTHORIZED (PS):</b>		
<b>CLEARANCE TAG INSTALLATION SECTION CLEARANCE</b>					
SEQ	TAG #	DEVICE AND COMPONENT NAME	LOCATION	TAGGED POSITION	
1	1	1N23M605A IBISSW	CON-25A-166 1H13P680	STOP	
		HTR DR PMP A 1N23C001A HANDSWITCH			
2	2	1N23M619A IBISSW	CON 25A-166 1H13P680	CLOSED	
		HTR DR PMP A DISCH VLV N23-F051A HANDSWITCH			
3	3	152-1310 CKTBRK	TURB 04-133 13AD	OPEN RACKED OUT OR BKR REMOVED	
		HTR DR PMP A 1N23C001A CKT BRK			
4	4	1N23M018A IBISSW	TURB 06-133 1H22P175	NORM AFTER CLOSED	
		HTR DR PMP A SUCT VLV N23-F049A HANDSWITCH			
4	5	1N23M096A IBISSW	TURB 06-133 1H22P175	NORM AFTER CLOSED	
		HTR DR PMP A VENT VLV N23-F045A HANDSWITCH			
5	6	52-112107 CKTBRK	TURB 05-113 11B21	OPEN	
		HTR DR PMP C001A SUCT MOV N23-F049A CKT BRK			

☒ CONTINUATION SHEET

<b>CLEARANCE GG-05-XXXX1 TAG INSTALLATION SECTION CLEARANCE GO</b>					
SEQ	TAG #	DEVICE AND COMPONENT NAME	LOCATION	TAGGED POSITION	
5	7	52-112103 CKTBRK	TURB 05-113 11B21	OPEN	
		HTR DR PMP C001A DISCH MOV N23-F051A CKT BRK			
5	8	52-1P12130 CKTBRK	TURB 05-113 11P21	OPEN	
		MOV HEATERS VERTICAL SECTION C CKT BRK (N23-F049A & F051A)			
5	9	52-1P12108 CKTBRK	TURB 05-113 11P21	OPEN	
		SPACE HTR COO1A CKT BRK (N23-C001A)			
5	10	1N23F26 FUSE	TURB 06-133 1H22P175	REMOVED	
		FUSE FOR SV N23-F596A PILOT VALVE FOR N23-F045A			

		A HTR DRN PMP MTR BRG CLR OUTL ISOL VALVE			
12	21	1P43-F188A VALVE	TURB 05-093	CLOSED	
		A HTR DRN PMP SEAL CLR OUTL ISOL VALVE			
12	22	1P43-F189A VALVE	TURB 05-093	CLOSED	
		A HTR DRN PMP BRG CLR OUTL ISOL VALVE			
13	23	1P43-F160A VALVE	TURB 05-093	CLOSED	
		A HTR DRN PMP SPLY HDR ISOL VALVE			

	<input type="checkbox"/> <input type="checkbox"/>	QUALITY RELATED	EN-WM-105	<input type="checkbox"/> REV.0
		INFORMATIONAL	U SE <input type="checkbox"/> PAGE 24 OF	

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☐ ☐ ☐ ATTACHMENT

9.2IMPACT TEMPL

E ☐ Sheet 1 o

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PLANNER

DATE

REVIEWER

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E: ☐ Remove and replace the pump seals of Heater Drain Pump 'A' due to excessive leak b  
y. Repair/resurface seal surfaces as necessary due to dama

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e. COMPONENT MODE: ( ) INSV (X) OOSV ( ) AVAILA

B

LE PLANT MODES & CONDITIO

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S: Plant may be in any condition. Preferred is plant in cold shutdown. Heater Drain Pump 'A' m  
ust be secured and isolated on the process side. Vent and drain the pump suction and discha  
rge pipi

n

g. EFFECTS ON ASSOCIATED SYSTEM AND COMPONEN

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S: ☐ Heater Drain System will be at half capacity for the pumping forward mode causing excess dr  
ain water from Heater Drain tank to be routed to the Main Condenser reducing overall plant ther  
mal efficien

cy. ☐ Suction pressures to the suction of the Reactor Feed Pumps will be reduced but overall the pl  
ant can achieve 100% pow

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r. PRE-MAINTENANCE ACTIVITI

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ne POST-MAINTENANCE ACTIVITI

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e. DOES THE ACTIVITY HAVE THE POTENTIAL TO SCRAM/TRIP THE PLANT: ( ) YES (X)

NO SECURITY/FIRE/CONTROL ROOM ENVELOPE BARRIER BREACH: ( ) YES (X)


NO RPS AFFECTED: ( ) YES (X)

NO ESF/EFSAS AFFECTED: ( ) YES (X)

NO ALARMS/COMPUTER POINTS AFFECTED (IF YES, LIST ON ATTACHED SHEET) ( ) YES (X)

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		INFORMATIONAL	U SE <input type="checkbox"/> PAGE 25 OF	

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<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> ATTACHMENT	9.3 OPERATIONAL IMPACT TEMPL
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E ☐ Sheet 1 of

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TECHNICAL SPECIFICATION

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NE REACTIVITY IMPACT (REQUIRED)

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): ☐ Securing a single Heater Drain Pump at full power will require power reduction below 95% and result in reduced Pump forward flow of the Heater Drain System resulting in a slight reduction of Feedwater inlet temperature to the reactor that will result in a small rise in core thermal power. With a slightly reduced Feedwater inlet temperature the plant will be operating closer to thermal limits and should be monitored.

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POTENTIAL SYSTEM/COMPONENT EFFECT

T


S: ☐ Securing a single Heater Drain Pump at <95% power is within the design of the systems. This will result in a reduced suction pressure to the Reactor Feed Pumps and reduced steam output for the same amount of reactor fuel thermal output. This results in an overall reduction in thermal cycle efficiency.

n

cy ACTUAL OR POTENTIAL MEASURE OR CONTINGENCY ACTION REQUIRED

E

D: ☐ If second Heater Drain Pump or any Condensate or Condensate Booster Pumps are lost, reactor power should be reduced to within the capabilities of Condensate and Feedwater System operations. Entry into the Reduction of Feedwater Heating and Loss of Feedwater Flow ON EPs may be required.

	<input type="checkbox"/> <input type="checkbox"/>	QUALITY RELATED	EN-WM-105	<input type="checkbox"/> REV.0
		INFORMATIONAL	U SE <input type="checkbox"/> PAGE 24 OF	

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☐ ☐ ☐ ATTACHMENT

9.2IMPACT TEMPL

E ☐ Sheet 1 o

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PLANNER

DATE

REVIEWER

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TEWORK SCO

P

E: ☐ Remove and replace the air operator diaphragms for the Scram Inlet and Outlet valves C11-127FD for Control Rod Hydraulic Control Unit for Control Rod 24-17

F

D.COMPONENT MODE: ( ) INSV (X) OOSV ( ) AVAILA

B

LE PLANT MODES & CONDITIO

N

S: Plant may be in any condition. Preferred is plant in cold shutdown. Control rod 24-17FD should be fully insert

e

d.EFFECTS ON ASSOCIATED SYSTEM AND COMPONENT

T

S: ☐ Control Rod 24-17FD will be fully inserted and isolated from the Control Rod Drive system  
☐ Reactor Engineering will have to determine the changes if any required for core configuration and thermal limit

t

s.PRE-MAINTENANCE ACTIVITI

E

S: ☐ Insert and isolate Control Rod HCU 24-17

F

D.POST-MAINTENANCE ACTIVITI

E

S: ☐ N

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n

eDOES THE ACTIVITY HAVE THE POTENTIAL TO SCRAM/TRIP THE PLANT: ( ) YES (X)


NO SECURITY/FIRE/CONTROL ROOM ENVELOPE BARRIER BREACH: ( ) YES (X)

NO RPS AFFECTED: (X) YES ( )

NO ESF/EFSAS AFFECTED: ( ) YES (X)

NO ALARMS/COMPUTER POINTS AFFECTED (IF YES, LIST ON ATTACHED SHEET) ( ) YES (X)

N

	<input type="checkbox"/> <input type="checkbox"/>	QUALITY RELATED	EN-WM-105	<input type="checkbox"/> REV.0
		INFORMATIONAL	U SE <input type="checkbox"/> PAGE 25 OF	

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<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> ATTACHMENT	9.3 OPERATIONAL IMPACT TEMPL
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E ☐ Sheet 1 o

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2

OPERATIONAL IMP

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ETECHNICAL SPECIFICATIO

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S: ☐ 3.1.3 Control Rod Operabil

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ty **LIMITING CONDITIONS FOR OPERATIO**

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S: ☐ Control Rod inoperable for reasons other than stu

c

k. **REACTIVITY IMPACT (REQUIRE**

D

): ☐ Reactor Engineering will have to review core configuration to determine changes to be mad  
e. The Control rod will be fully inserted performing its required functi

o

n. **POTENTIAL SYSTEM/COMPONENT EFFEC**

T

S: ☐ Control Rod is fully inserted and isolated from Control Rod Drive Syst

e

m. **ACTUAL OR POTENTIAL MEASURE OR CONTINGENCY ACTION REQUIR**

E

D: ☐ No

Facility: **GRAND GULF NUCLEAR STATION** Scenario No.: **1** Op-Test No.: **Day 1**

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Objectives:** To evaluate the candidates' ability to operate the facility in response to the following evolutions:

- 2 1. Start RCIC for testing per EPI CST to CST.
2. Respond to a failure of 1C34-LI-R606C RPV Narrow Range Level 'C' downscale.
- 3 3. Take actions in response to a Low Pressure Feedwater Heater 3C Tube leak and Failure of the Heater String to Isolate. Complete actions of the Loss of Feedwater Heating ONEP and Reduction in Recirculation System Flowrate ONEP.
- 4 4. Respond to a trip of RCIC.
- 5 5. Respond to a loss of RPS normal power supply.
- 6 6. Take actions for a double Recirculation Pump downshift to manually scram the reactor.
- 7 7. Take actions per the EOPs in response to an ATWS and mitigate the consequences of the ATWS with Main Steam Bypass Valves.
- 8 8. Respond to a failure of Division II ECCS to manually initiate via the Manual Initiation pushbutton.

**Initial Conditions:** Reactor Power is at 100 %.

**INOPERABLE Equipment**

SRMs 'E' & 'F' are INOP  
 APRM 'H' is INOP due to a failed power supply card.  
 LPCS Pump is tagged out of service for motor oil replacement.  
 ESF Transformer 12 is tagged out of service Entergy – Mississippi maintenance.  
 Appropriate clearances and LCOs are written.

**Turnover:** The plant is operating at 100% power. Operate RCIC CST to CST at rated flow per a controlled startup in the EPI to allow taking of engineering data with RCIC operating 800 gpm at 1000 psig Standby Service Water 'A' is operating. Containment Ventilation is operating in High Volume Purge. There are scattered thundershowers reported in the Tensas Parish area.

Event No.	Malf. No.	Event Type*	Event Description
1		N (BOP)	Start RCIC and operate CST to CST per EPI. (EPI 04-1-03-E51-2)

## Appendix D

## Scenario 1 Day 1 (Continued)

Event No.	Malf. No.	Event Type*	Event Description
2	1 fw126c@ 0	TS (SS)	Respond to RPV Narrow Range Level 'C' instrument failure downscale. Complete <b>Technical Specification</b> determination.
3	2 fw232i @ 50% ramp to 80%	R (RO)	Respond to a tube failure in LP FW Heater 3C. Perform actions per ONEP 05-1-02-V-5 and ONEP 05-1-02-III-3. Lower Reactor power with Recirc flow.
	fw270i 870_6a_b_3 ON	C (BOP )	With a failure to isolate the Condensate System. Perform actions per ARI 04-1-02-1H13-P870 6A-B3 to isolate LP Feedwater Heater String 'C'.
4	3 e51047	C (BOP ) TS (SS)	RCIC Turbine Trip. Complete <b>Technical Specification</b> determination.
5	4 c71077b	C (RO/ BOP)	Respond to a RPS 'B' Motor Generator EPA Breaker Trip per the ONEP 05-1-02-III-2.
6	5 fw201; c71162	C (RO)	Respond to a double Reactor Recirculation Pump down shift, Automatic RPS actuation fails requiring insertion of a manual Reactor Scram (ATWS ARI Initiation).
7	6 c11164 @ 1%	M (ALL)	Upon Reactor Scram recognize the failure of all control rods to fully insert and take actions per EOPs for ATWS with Main Steam Bypass Valves.
	7 di_1e12 m617@ NORM	I (BOP)	Upon orders to initiate and override Low Pressure ECCS, recognize the failure of Division II to initiate via Manual Initiation pushbutton. Take actions upon automatic initiation to override Division II Low Pressure ECCS.
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

**Critical Tasks**

- Terminate and prevent injection from Feedwater and ECCS when conditions require entry into Level/Power Control.
- Commence injection into the reactor using Feedwater or RHR 'A' or 'B' through Shutdown Cooling to restore and maintain level > -192 inches.
- Insert Control Rods in response to ATWS conditions.

## Scenario 1 Day 1 (Continued)

### **Crew Turnover:**

Rx is at 100% CTP.

SRMs 'E' & 'F' are bypassed.

APRM 'H' is failed due to a failed power supply card and bypassed.

LPCS Pump is tagged out of service for motor oil replacement.

ESF Transformer 12 is tagged out of service for Entergy –Mississippi maintenance.

Appropriate clearances and LCOs are written.

The plant is scheduled to operate RCIC CST to CST at rated flow per a controlled startup in the EPI 04-1-03-E51-2 to allow taking of engineering data. Standby Service Water 'A' is operating. Radiation Protection has been notified. A Non-Licensed Operator will perform 06-OP-1M24-V-0001 Suppression Pool Temperature Monitoring. The STA has set GETARS to collect data. The Auxiliary Building Operator has performed the local pre-start checks and is standing by.

Containment Ventilation is operating in High Volume Purge IAW EPI 04-1-03-M41-3.

Plant EOOS factor is 9.7 GREEN

There are scattered thunderstorms reported in the Tensas Parish area.

**Simulator Setup:** (Scenarios may be setup and shot into encrypted ICs and Password protected.)

Start the process from a new simulator load.  
Reset to IC-19.

Verify or perform the following:

IC: 19

OOS: APRM H (Place in Bypass w/ Caution tag)  
SRMs E & F (Place in Bypass w/ Caution tag)  
LPCS Pump (Place tag on start HS)  
ESF XFMR 12 (Place tag on J3885, 152-1903, 152-1904, 152-1905, 152-1511, 152-1611, 152-1704 HS)

Active malfunctions: **c11164 @ 1% SDV Block**

Active Remote Functions: **c51262** APRM H function switch to **STDBY**  
**p81218** J3885 115KV Disconnect **OPEN**  
**e21643** LPCS Pump BKR **OUT**

**152-1511** **lo\_1r21m601a\_g** Bus 15AA FDR FM ESF XFMR 12 **OFF**  
**di\_1r21m601ap864/01c** Bus 15AA FDR FM ESF XFMR  
12 **TRIP**

**152-1611** **lo\_1r21m601b\_g** Bus 16AB FDR FM ESF XFMR 12 **OFF**  
**di\_1r21m601bp864/02c** Bus 16AB FDR FM ESF XFMR  
12 **TRIP**

**152-1704** **lo\_1e22m709\_g** 17AC FDR FM ESF 12 **OFF**  
**di\_1e22m709p601/16c** 17AC FDR FM ESF 12 **OFF**

**152-1903** **lo\_1r21m623\_g** Bus 15AA/16AB/27AC FDR FM ESF  
XFMR 12 **OFF**  
**di\_1r21m623p807/01c** Bus 15AA/16AB/27AC FDR FM  
ESF XFMR 12 **TRIP**

**152-1904** **lo\_1r21m624\_g** Bus 17AC/25AA/26AB FDR FM ESF  
XFMR 12 **OFF**  
**di\_1r21m624p807/01c** Bus 17AC/25AA/26AB FDR FM  
ESF XFMR 12 **TRIP**

**152-1905** **lo\_1r21m637\_g** SWYD XFMR T3 FDR FM ESF XFMR  
12 **OFF**  
**di\_1r21m637p807/01c** SWYD XFMR T3 FDR FM ESF  
XFMR 12 **TRIP**

Active overrides: **di\_1e12m617 p601/17b** RHRB/C Man Init Arm H13-P601  
**NORM**

Pending overrides: **870\_6a\_b\_3** ON H13-P870 annunciator for High-High  
Level 3C FW Heater (TRG 7)



(TRG 9) **lo\_1c71m600a\_a1** P680/05c1 RPS White Lights OFF

(TRG 9) **lo\_1c71m600a\_a2** P680/05c1 RPS White Lights OFF

(TRG 9) **lo\_1c71m600c\_a1** P680/05c1 RPS White Lights OFF

(TRG 9) **lo\_1c71m600c\_a2** P680/05c1 RPS White Lights OFF

(TRG 9) **lo\_1c71m600b\_a1** P680/07c1 RPS White Lights OFF

(TRG 9) **lo\_1c71m600b\_a2** P680/07c1 RPS White Lights OFF

(TRG 9) **lo\_1c71m600d\_a1** P680/07c1 RPS White Lights OFF

(TRG 9) **lo\_1c71m600d\_a2** P680/07c1 RPS White Lights OFF

**p680\_7a\_a\_2** Rx Scram Trip ON (TRG 9)  
**p680\_7a\_a\_3** Rx Man Scram Trip ON (TRG 9)

Pending malfunctions: **fw126c@0%** RPV Narrow Range Level ‘C’ instrument failure downscale (TRG 1)  
**fw232i @ 50%** LP FW Htr 3C tube failure (TRG 2) ramp to 80% over 1 min after first alarm received.  
**fw270i** Failure of N19-F040C and F042C to isolate.(TRG 1)  
**e51047** RCIC Turbine Trip (TRG 3)  
**c71077b** RPS Motor Generator ‘B’ Trip (EPA Breaker Trip)(TRG 4)  
**c71162** RPS automatic and manual Scram Failure (TRG 5)  
**fw201** Double Recirculation Pump Downshift (TRG 6)

Pending component malfunctions: None

Trigger files: downscale	Trigger 1	RPV Narrow Range Level ‘C’
	Trigger 2	LP FW Heater Tube Rupture
	Trigger 3	RCIC Turbine Trip
	Trigger 4	RPS ‘B’ Power Failure
	Trigger 5	RPS Failure to Scram
	Trigger 6	Double Recirc Pump Downshift
	Trigger 9	RPS actuation indications

COMPONENT	PANEL	INDICATION or CONTROL	SIMULATOR CODE	STATUS	DONE
APRM H			c51262	STDBY	
LPCS PUMP	P601-21C		e21643 OUT	OUT	
152-1511	P864-1C	Green light	lo_1r21m601a_g	OFF	
	P864-1C	Handswitch	di_1r21m601a	STOP	

152-1611	P864-2C	Green light	lo 1r21m601b g	OFF	
	P864-2C	Handswitch	di 1r21m601b	STOP	
152-1704	P601-16C	Green light	lo 1e22m709 g	OFF	
	P601-16C	Handswitch	di 1e22m709	STOP	
152-1903	P807-1C	Green light	lo 1r21m623 g	OFF	
	P807-1C	Handswitch	di 1r21m623	STOP	
152-1904	P807-1C	Green light	lo 1r21m624 g	OFF	
	P807-1C	Handswitch	di 1r21m624	STOP	
152-1905	P807-1C	Green light	lo 1r21m637 g	OFF	
	P807-1C	Handswitch	di 1r21m637	STOP	
J3885 115 KV Disconnect	P807-1C	Green Light	p81218	OPEN	

Bypass Division 2 APRM Bypass Joystick to APRM H position.

Place LPCS OOSVC handswitch to OOSVC.

Startup Standby Service Water 'A' and align through RHR 'A' Heat Exchanger and RCIC

Startup Containment Ventilation High Volume Purge per 04-1-03-M41-3.

Startup all PDS / SPDS screens. Clear any graphs and trends off of SPDS.

Setup the presently used cyclops display and verify it is functional.

Ensure the correct startup sequence is available at the P680 for the present IC.

Install turnover guide, red tag, and LCO paperwork as applicable.

Advance all chart recorders and ensure all pens are inking properly.  
(APRM chart recorders must be turned on and settings for scales on pens 0 – 125 scale)

Place tags on ALL circuit breakers associated with the ESF 12 Transformer outage.

Place tags on APRM H and SRMS E & F Joysticks

Place tag on LPCS Pump Handswitch

## **SIMULATOR OPERATION SCENARIO 1**

Once simulator is reinitialized and setup complete take the simulator out of Freeze.

Once the Crew has taken control note the simulator time.

### **Operate RCIC**

Start RCIC CST to CST per EPI

Cues:

**If asked operate RCIC at 800 gpm.**

**If asked, report as Auxiliary Building Operator, RCIC ready for start.**

**If asked, report as Auxiliary Building Operator, E51-F268 pressure lock valve for E51-F013 is closed.**

### **RPV Narrow Range Instrument Tech Spec**

Once RCIC is operating, wait 1 minute then **activate TRIGGER 1.**

Cues:

**If asked, report that RPV Narrow Range Level Instrument 'C' appears to be failed downscale. Annunciator for DFCS Trouble H13-P680 2A-C9, INFI-90 Trouble Light and Level C Disabled on H13-P680 2C are illuminated.**

**If asked, report as I&C you will investigate failure on the INFI – 90 computer.**

Other than reports, operators have no actions to take. The Digital Feed Control System should eliminate the abnormal signal and substitute signal.

The SRO will review TRM 6.3.7 Condition A. LCO will be initiated.

**(The following time delay may be shortened by Lead Evaluator pending completion of Tech Spec interpretation.)**

### **LP Feedwater Heater leak**

Six (6) minutes after Narrow Range C downscale, **activate TRIGGER 2.**

**Simulator Operator ramp fw232i from 50% to 80% over one (1) minute following first FW Heater alarm.**

Cues:

**If asked, report Turbine Building Operator at the controllers on H22-P172 for LP FW Heater 3C are calling for dumps and drains to be full open and valves are responding.**

BOP operator will have to manually close N19-F042C and N19-F040C LP FW Heater String C Inlet and Outlet Isolation Valves.

**Simulator Operator – Ensure the High-High Level Annunciator comes in and delete the annunciator override H13-P870 6A-B3 when N19-F042C and F040C are fully closed.**

The ATC operator will lower power per Loss of Feedwater Heating ONEP to 67 Mlbm/Hr core flow using slow detent.

Reactor Power and Core Flow will be in the MONITORED REGION of the Power to Flow Map.

**If asked, report other Main Steam Line Radiation Monitors are reading approximately 1930 mR/hr. (Main Steam Line Radiation Alarm is due to Hydrogen Water Chemistry in service.)**

### **RCIC Turbine Trip**

When plant is stabilized and four (4) minutes after isolation of LP FW Heater String 'C', **activate TRIGGER 3.**

RCIC turbine will trip. (RCIC Low Suction Pressure)

The BOP operator should evaluate indications and report to SS and use the SOI or EPI to secure the RCIC system. The level of shutdown will be determined by the SS.

This will require evaluation of Technical Specifications 3.5.3 and 3.5.1. This is a 14 day LCO for RCIC with HPCS operable. (This is not affected by LPCS.)

Cues:

**If asked, report as Auxiliary Building Operator that there is NO obvious indication as to the cause of the RCIC turbine trip in the RCIC Room.**



### **RPS 'B' Normal Power Supply Trip**

When plant is stabilized and four (4) minutes after RCIC Trip, **activate TRIGGER 4.**

RPS 'B' Power Supply Trip

Cues:

**If asked, report at Control Building Operator that the RPS 'B' Motor Generator is operating at normal voltage and frequency and the EPA Breaker C71-S003D has an under frequency indication and the breaker is tripped.**

**If asked, respond as Electrical Maintenance that you will investigate the problem.**

**If asked, respond RPS MG Room temperature is normal around 90 degrees F.**

**If asked, report as Control Building Operator that the EPA Breaker will NOT reset.**

### **Reactor Recirculation Pump Double Downshift**

When RPS 'B' is RESET, **activate TRIGGER 5,** this inserts the failure to automatically scram on turbine trip.

When plant is stabilized and two (2) minutes after RPS Trip is reset, **activate TRIGGER 6.**

The Double Downshift will cause plant conditions to require initiation of a manual scram due to Power to Flow conditions. This action is per the Reduction in Recirculation System Flowrate ONEP.

When the operator places the Reactor Mode Switch to Shutdown, **activate TRIGGER 9.** This makes it appear RPS relays actuated.

RPS will not insert control rods from the Manual Scram pushbuttons or the Reactor Mode Switch, the ATC will have to activate ATWS ARI to insert control rods.

The Crew will manually insert control rods using ATWS ARI at which time the Scram Discharge Volume Hydraulic Block ATWS will appear.

This is an ATWS with Main Steam Bypass Valves available for Reactor Pressure Control.

EP Attachments which may be requested:

Attachment 12 Defeat RHR Shutdown Cooling interlocks

6 minutes to

DONE

Attachment 19 Defeat RPS 4 minutes to

DONE

Attachment 20 Defeat RCIS 5 minutes to

DONE

Attachment 8 Defeat MSIV isolations 9 minutes to

DONE

If Attachment 8 is requested early by itself - 3 minutes to DONE

Attachment 18 Defeat ATWS ARI 3 minutes to

DONE



## **TERMINATION**

Once Control Rods are being inserted and the Lead Evaluator concurs, the scenario may be terminated.

### **Critical Tasks**

- Terminate and prevent injection from Feedwater and ECCS when conditions require entry into Level/Power Control.
- Commence injection into the reactor using Feedwater or RHR 'A' or 'B' through Shutdown Cooling to restore and maintain level > -192 inches. (If in the judgement of the SS level cannot be restored Emergency Depressurization is allowed.)
- Insert Control Rods in response to ATWS conditions.

### **Emergency Plan Procedure – Emergency Action Level Classification**

Site Area Emergency based on 10-S-01-1 Attachment I EAL 11.4

Appendix D	Operator Actions	Form ES-D-2
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Op-Test No.: _____ Scenario No.: <b>__1__</b> Event No.: <b>__1__</b>		
Event Description: <b>Start RCIC in CST to CST operation per EPI (04-1-03-E51-2)</b>		
Time	Position	Applicant's Actions or Behavior
	BOP	Starts up RCIC and aligns it to draw from the CST and discharge to the CST per EPI 04-1-03-E51-2.

Op-Test No.: _____ Scenario No.: <b>__1__</b> Event No.: <b>__2__</b>		
Event Description: <b>Respond to a RPV Narrow Range Level 'C' Instrument failure downscale.</b>		
Time	Position	Applicant's Actions or Behavior
	RO	Determines RPV Narrow Range Level 'C' is downscale and reviews Alarm Response Instructions. (ARI 04-1-02-1H13-P680 2A-C9 & 4A2-A2) The Digital Feed Control System will automatically discontinue use of this signal and import the RPV Upset Range Instrument. There should be NO actions taken by the RO other than identifying the problem.

Op-Test No.: \_\_\_\_\_ Scenario No.: 1 Event No.: 3

Event Description: **Respond to a tube failure on LP FW Heater 3C.**

Time	Position	Applicant's Actions or Behavior
	RO	Recognizes annunciator concerning High level in 3C LP FW heater. Calls up display on PDS computer of N23 to determine heater level and operation of drains and dumps. Annunciator H13-P680 2A-B8 High Level. Annunciator H13-P680 4A1-B2 H22-P172 INFI 90 Trouble is already in due to a local controller in the plant in Manual. This Annunciator does have re-flash capability.
	SS	Dispatch an operator to H22-P172 panel to investigate Heater Drains Controllers.
	BOP	Responds to the High-High level Annunciator for LP Feedwater Heater 3C. (ARI 04-1-02-1H13-P870-6A-B3)
	RO	Lowers Reactor Power using Reactor Recirc Flow control to 67Mlbm/Hr Core flow using slow detent on the Recirc Flow Control Valve Controllers per ONEP 05-1-02-V-5, Loss of Feedwater Heating. Monitor operation on the Power to Flow Map per ONEP 05-1-02-III-3, Reduction in Recirculation System Flow Rate.
	BOP	Upon recognition of the failure of the Condensate through the LP FW string to automatically isolate, isolates the LP FW heater string inlet and outlet valves N19-F042C and N19-F040C on H13-P870 section 6C.
	BOP	Verify Seal Steam Pressure Extraction Steam pressure Low due to down power.
	BOP	Verify Main Steam Line Rad Monitor High due to Hydrogen Water Chemistry operation.
	RO or BOP	Monitors Reactor for Thermal Hydraulic Instability per ONEP 05-1-02-III-3, Reduction in Recirc Flow. <b>MONITORED REGION</b>
	RO or BOP	Monitors Feedwater temperature vs Reactor Power per ONEP 05-1-02-V-5 Loss of Feedwater Heating. <b>REGION I</b>

Op-Test No.: \_\_\_\_\_ Scenario No.: 1 Event No.: 4

Event Description: **Respond to a RCIC Turbine Trip.**

Time	Position	Applicant's Actions or Behavior
	BOP	Responds to the annunciators for the RCIC Turbine Trip. RCIC per H13-P601 21A-A3 and 21A-H5. If ordered secures RCIC per the EPI. The level of securing RCIC is up to the SS discretion.
	SS	Dispatch an operator to RCIC to investigate the RCIC turbine trip.
	SS	Reviews the Technical Specifications associated with RCIC being INOP along with LPCS INOP. Tech Specs 3.5.3 and 3.5.1. (Since HPCS is operable 14 days to restore to operable per TS 3.5.3 Condition A.)(LPCS is dependent upon the other Low Pressure ECCS and HPCS.)

Op-Test No.: \_\_\_\_\_ Scenario No.: 1 Event No.: 5Event Description: **Respond to a RPS 'B' Power loss.**

Time	Position	Applicant's Actions or Behavior
	RO	Responds to the annunciators for the RPS 'B' power loss. (HCU Fault & Rx Scram Trip) The Division 2 RPS white lights will be de-energized. The HCU Fault will show 4 HCU faults associated with the HCU's with blue dots.
	SS	Dispatch an operator to RPS 'B' to investigate.
	BOP	Checks the H13-P610 panel and notes the white light for RPS 'B' Normal power supply is de-energized, the white light for Alternate Power is illuminated and the selector switch is selected to Normal.
	SS	Refers to ONEP 05-1-02-III-2 Loss of One or Both RPS Busses. Orders transfer of RPS 'B' to Alternate.
	BOP	Transfers RPS 'B' to the Alternate Power source at H13-P610.
	RO	Upon restoration of power to RPS 'B', reset half scram signals on RPS 'B'.
	SS	May refer to Tech Spec 3.3.8.2 Reactor Protection System Electric Power Monitoring. This requires EPA Breakers for the in-service RPS power supply to be operable. When transferred to the Alternate Supply, this is no longer an issue. The SS should identify the need for a Potential LCO on the inoperable EPA Breaker. The SS may indicate a Potential LCO should be initiated.

Op-Test No.: \_\_\_\_\_ Scenario No.:   1   Event No.:   6  Event Description: **Respond to an inadvertent double Reactor Recirculation Pump Downshift to Slow Speed**

Time	Position	Applicant's Actions or Behavior
	RO	Observes annunciators and indications that both Reactor Recirculation Pumps have downshifted to slow speed with the Recirc Flow Control Valves partially closed.
	RO	Attempts to Manually scram the reactor per ONEP 05-1-02-III-3. May use Mode Switch then Manual Scram Pushbuttons. (neither will work)
	RO	Informs SS of failure of RPS to initiate control rod insertion.
	SS	Enters EP-2/2A for an ATWS, orders the initiation of ATWS ARI/RPT.
	RO	Initiates ATWS ARI/RPT to insert control rods and trip the Recirc Pumps.
	RO	Verifies All Control Rods have fully inserted to position 00 and determines ALL Control Rods NOT fully inserted and reports to the SS.

Op-Test No.: \_\_\_\_\_ Scenario No.: 1 Event No.: 7Event Description: **ATWS with Main Steam Bypass Valves**

Time	Position	Applicant's Actions or Behavior
	SS	Continues EP-2A.
	BOP	On orders inhibits ADS.
	BOP	On orders initiates and overrides HPCS.
	RO	Realigns Condensate and Feedwater on Startup Level Control and maintains reactor level within level band specified by the SS. Initially may operate in a normal lineup then transition to Startup Level Control.
	BOP	Maintains RPV pressure based on SS orders using Turbine Bypass valves or SRVs as appropriate. (optional) Pressure band 800 – 1060 psig (may set IPC Pressure Reference at 900 psig.) These are acceptable.
	BOP	When ordered by SS, restores Auxiliary Building, Containment, and Drywell isolation (Instrument Air, Plant Service Water, and Drywell Chilled Water). (Attachment 7 of EP-2)
	SS **	Orders installation of Attachments 18, 19, and 20 of EP-2. (may not order Attachment 18 since RPS is still energized.
	SS	Orders installation of Attachments 8 and 12 of EP-2.
	BOP	Notifies SS of MSL RAD HI (If Alarmed)
	SS	Enters EP-4 on MSL RAD HI (If Alarmed)

\*\* Critical Task

Op-Test No.: \_\_\_\_\_ Scenario No.:   1   Event No.:   7  Event Description: **ATWS with Main Steam Bypass Valves (Cont.)**

Time	Position	Applicant's Actions or Behavior
	SS **	Based on conditions orders Terminate and Prevent step to lower RPV level to reduce reactor power.
	BOP/RO **	Terminates and prevents systems ordered by SS, upon manual initiation of Division II ECCS reports failure of manual initiation and must await automatic initiation to allow overriding Division II ECCS.
	RO **	On orders of SS, initiates flow to the RPV from Condensate / Feedwater.
	BOP/RO **	Insert Control Rods by scrambling rods and inserting rods using CRD/RCIS. CRD Drive Pressure, Instrument Air to Containment and Auxiliary Building, and RPS reset. (Scramming rods is not an option)

\*\* Critical Task

Op-Test No.: \_\_\_\_\_ Scenario No.:   1   Event No.:   7  Event Description: **ATWS with Main Steam Bypass Valves (cont.)**

Time	Position	Applicant's Actions or Behavior
	SS	If level drops below –192 inches Fuel Zone, may elect to Emergency Depressurize. (Optional) (SS may continue if systems are available to raise level.)
	SS	If Emergency Depressurization is required, orders to Initiate Standby Liquid Control will be given.
	BOP	On orders initiates both trains of Standby Liquid Control.
	SS	Orders Terminate and Prevent step for Emergency Depressurization. (Optional)
	BOP/RO	Terminates and prevents systems ordered by SS. (Optional)
	BOP/RO	If ordered opens 8 ADS SRVs. (Optional)
	SS	Upon Reactor pressure drop < 219 psig with 8 SRVs open, orders slow injection with Condensate and Feedwater. (Optional)
	BOP/RO	Injects with Condensate at prescribed rates by SS. (Optional)

Optionals for Emergency Depressurization leg of EP-2A are only if SS elects to use this based on RPV Water Level < -192 inches and unable to be restored and maintained.



Facility: **GRAND GULF NUCLEAR STATION** Scenario No.: **2** Op-Test No.: **Day 1**

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- 2 **Objectives:** To evaluate the candidates' ability to operate the facility in response to the following evolutions:
- 3 1. Start SSW 'A' in support of chemical addition.
  - 4 2. Raise Reactor Power by withdrawing control rods. Respond to single control rod drift per ONEP 05-1-02-IV-1.
  - 5 3. Respond to ESF Transformer 21 trouble and subsequent trip with a failure of DG 12 to start.
  - 6 4. Take actions to mitigate a large break failure of Feedwater piping in the Drywell per EOPs. (LOCA is NOT severe enough to result in depressurization of RPV.)
  - 7 5. Respond to a failure of Division 1 ECCS to automatically initiate on High Drywell Pressure.
  - 8 6. Respond to a failure of High Pressure Core Spray to inject. (LOCA with degraded high pressure sources.)

**Initial Conditions:** Reactor Power is at 45 %. Plant startup is in progress following an outage. Reactor Recirculation pumps in Fast Speed; a single Reactor Feed Pump in Three element Master Level Control; both Heater Drain Pumps are pumping forward.

**INOPERABLE Equipment**

SRMs 'E' & 'F' are INOP and bypassed.  
 APRM 'H' is INOP due to a failed power supply card.  
 LPCS Pump is tagged out of service for pump seal replacement.  
 ESF 12 Transformer is tagged out of service for maintenance.  
 Appropriate clearances and LCOs are written.

**Turnover:** Chemistry requires SSW 'A' in operation to support a chemical addition. Continue plant startup per IOI-2. There are scattered thunder showers reported in the Tensas Parish area.

Event No.	Malf. No.	Event Type*	Event Description
1		N (BO P)	Place Standby Service Water 'A' in service for chemical addition. (EPI 04-1-03-P41-1)
2		R (RO)	Raise Reactor power using control rods to between 40 and 45%. (Control Rod Pull Sheet)
3	1 z161161_24_17	C (RO) TS (SS)	Respond to single control rod drift taking actions to insert the control rod. (ONEP 05-1-02-IV-1) Disarm Control Rod. Complete <b>Technical Specification</b> determination.

Scenario 2 Day 1 (Continued)

Event No.	Malf. No.	Event Type*	Event Description
4	3 p807_4a_f_2 ON r21180 n41141b	C (BO P) TS (SS)	Respond to trouble and trip of ESF Transformer 21 with a failure of DG 12 to Start. Complete <b>Technical Specification</b> determination. (ONEP 05-1-01-I-4)
5	4 fw0171b @ 70% rr063b @ 1%	M (ALL)	Respond to indications of large break LOCA on Feedwater Line 'B' per EOPs. (B21-F065B will close if attempted.)
	5 rr040e@ 0 rr041e @ 83%	I (BOP )	Respond to a failure of Division 1 ECCS to automatically initiate on High Drywell Pressure.
	6 e22159a@ 0	C (BO P)	Respond to a failure of High Pressure Core Spray to inject.

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

**Critical Tasks**

- Recognize failure of Division 1 to initiate and manually initiate Division 1.
- Isolate the failed Feedwater line and re-establish Condensate/Feedwater or when RPV level reaches -160 inches wide range, Emergency Depressurizes the RPV to allow injection from Low Pressure systems (if level cannot be restored and maintained above -192 inches).

## Scenario 2 Day 1 (Continued)

### **Crew Turnover:**

Rx power is at 45% CTP.

The plant is raising power in following an outage.

Reactor Recirculation Pumps are operating in Fast Speed.

The 'A' Reactor Feed Pump is operating in Three Element Master Level Control.

Both Heater Drain Pumps are pumping forward.

Circ Water is in Single Pump Dual Train 'A' Pump in service.

SRMs 'E' & 'F' are INOP and bypassed.

APRM 'H' is failed due to a failed power supply card and bypassed.

ESF 12 Transformer is tagged out of service for maintenance.

LPCS Pump is tagged out of service for pump seal replacement.

Appropriate clearances and LCOs are written.

Standby Service Water 'A' requires a Chemical Addition run per EPI 04-1-03-P41-1. Section 7.4 of EPI 04-1-03-P41-1 is not required to be performed. Pre-start checks are complete.

Continue to startup the plant.

Reactor Engineering recommends completing step 154b of the Control Rod Movement Sequence for core symmetry prior to starting the second Reactor Feed Pump and Circ Water pumps.

At step 5.15 of IOI-2 Attachment I.

Startup Pull Sheet Step 154b.

Plant EOOS is 9.7 GREEN.

There are scattered thunderstorms reported in the Tensas Parish area.

**Simulator Setup:** (Scenarios may be setup and shot into encrypted ICs and Password protected.)

Start the process from a new simulator load.  
Reset to IC-13.

Verify or perform the following:

IC: 13

OOS: APRM H (Place in Bypass w/ Caution tag)  
SRMs E & F (Place in Bypass w/ Caution tag)  
LPCS Pump (Place tag on start HS)  
ESF XFMR 12 (Place tag on J3885, 152-1903, 152-1904, 152-1905, 152-1511, 152-1611, 152-1704 HS)

Active malfunctions: None

Active Remote Functions: **c51262** APRM H Function Switch to **STDBY**  
**p81218** J3885 115KV Disconnect **OPEN**  
**e21643** LPCS Pump BKR **OUT**  
**152-1511 lo\_1r21m601a\_g** Bus 15AA FDR FM ESF XFMR 12 **OFF**  
**di\_1r21m601ap864/01c** Bus 15AA FDR FM ESF XFMR  
12 **TRIP**  
**152-1611 lo\_1r21m601b\_g** Bus 16AB FDR FM ESF XFMR 12 **OFF**  
**di\_1r21m601bp864/02c** Bus 16AB FDR FM ESF XFMR  
12 **TRIP**  
**152-1704 lo\_1e22m709\_g** 17AC FDR FM ESF 12 **OFF**  
**di\_1e22m709p601/16c** 17AC FDR FM ESF 12 **OFF**  
**152-1903 lo\_1r21m623\_g** Bus 15AA/16AB/27AC FDR FM ESF  
XFMR 12 **OFF**  
**di\_1r21m623p807/01c** Bus 15AA/16AB/27AC FDR FM  
ESF XFMR 12 **TRIP**  
**152-1904 lo\_1r21m624\_g** Bus 17AC/25AA/26AB FDR FM ESF  
XFMR 12 **OFF**  
**di\_1r21m624p807/01c** Bus 17AC/25AA/26AB FDR FM  
ESF XFMR 12 **TRIP**  
**152-1905 lo\_1r21m637\_g** SWYD XFMR T3 FDR FM ESF XFMR  
12 **OFF**  
**di\_1r21m637p807/01c** SWYD XFMR T3 FDR FM ESF  
XFMR 12 **TRIP**  
**E22-F004 e22159a @ 0** E22-F004 HPCS Injection failure closed.

Active overrides: None

Pending overrides: **p807\_4a\_f\_2** ON ESF Transformer 21 Trouble (TRG 2)

Pending malfunctions:      **z161161\_24\_17** Control Rod 24-17 drifts outward (TRG 1)  
**r21180** ESF Transformer 21 trip **3 min time delay** (TRG 2)  
**n41141b** Diesel Generator 12 (Division 2) trip **3 min time delay**.  
(TRG 2)  
**rr040e@0** Division 1 ECCS High Drywell Pressure signal  
(TRG 3)  
**rr041e@83** Division 1 ECCS Low Reactor Level signal  
(TRG 3)  
**fw171b@70%** Feedwater Line 'B' break in Drywell **20 second time delay** (TRG 3)  
**rr063b@1%** Recirc line 'B' leakage to simulate Feedwater Check Valve leakage **1 minute time delay ramp to 4% over 2 minutes** (TRG 3)

Pending component malfunctions:    None

Trigger files:                      Trigger 1            Control Rod 24-17 drift  
   Trigger 2            ESF Transformer 21 Trouble and  
Trip  
   Trigger 3            Feedwater Line 'B' rupture in  
Drywell

COMPONENT	PANEL	INDICATION or CONTROL	SIMULATOR CODE	STATUS	DONE
APRM H			c51262	STDBY	
LPCS PUMP	P601-21C		e21643 OUT	OUT	
152-1511	P864-1C	Green light	lo 1r21m601a_g	OFF	
	P864-1C	Handswitch	di 1r21m601a	STOP	
152-1611	P864-2C	Green light	lo 1r21m601b_g	OFF	
	P864-2C	Handswitch	di 1r21m601b	STOP	
152-1704	P601-16C	Green light	lo 1e22m709_g	OFF	
	P601-16C	Handswitch	di 1e22m709	STOP	
152-1903	P807-1C	Green light	lo 1r21m623_g	OFF	
	P807-1C	Handswitch	di 1r21m623	STOP	
152-1904	P807-1C	Green light	lo 1r21m624_g	OFF	
	P807-1C	Handswitch	di 1r21m624	STOP	
152-1905	P807-1C	Green light	lo 1r21m637_g	OFF	
	P807-1C	Handswitch	di 1r21m637	STOP	
J3885 115 KV Disconnect	P807-1C	Green Light	p81218	OPEN	

Bypass Division 2 APRM Bypass Joystick to APRM H position.

SRMs E & F are bypassed in the IC setup for Cycle 14.

Place LPCS OOSVC handswitch to OOSVC.

Verify or perform the following:

Open Circuit Breakers 152-1903, 1904, 1905, 1511, 1611, and 1704

Place LPCS OOSVC handswitch to OOSVC.

Startup all PDS / SPDS screens. Clear any graphs and trends off of SPDS.

Setup the presently used cyclops display and verify it is functional.

Ensure the correct startup sequence is available at the P680 for the present IC.

Install turnover guide, red tag, and LCO paperwork as applicable.

Advance all chart recorders and ensure all pens are inking properly.  
(APRM chart recorders must be turned on and settings for scales on pens 0 – 125 scale)

Place tags on ALL circuit breakers associated with the ESF 12 Transformer outage.

Place tags on APRM H and SRMS E & F Joysticks

Place tag on LPCS Pump Handswitch

## **SIMULATOR OPERATION SCENARIO 2**

Once simulator is reinitialized and setup complete take the simulator out of Freeze.

Once the Crew has taken control note the simulator time.

### **Operate SSW 'A'**

Crew will start SSW 'A' per EPI 04-1-03-P41-1.

### **Raise Reactor Power with control rods**

This step will raise Reactor Power from 45 to 49%.

Crew will review procedures for raising power using control rods.

Cues:

**If asked, report as Reactor Engineer – you would prefer to raise power by control rod withdrawal in individual rod movement. Continuous rod motion is allowed between positions 32 and 48.**

## **Control Rod Drift**

Once power has sufficiently been manipulated and the Lead Examiner concurs, **activate TRIGGER 1.**

Respond to drifting control rod per ONEP 05-1-02-IV-1, CRD Malfunctions.

When the control rod is inserted to position 00 and insert signal released the control rod will begin to drift outward again, requiring a continuous insert signal to be applied until the HCU is isolated per section 3.2.1 of the ONEP.

Core flow will not have to be changed since it is already at 67 Mlbm/hr.

Crew may attempt to lower drive water DP after reaching full-in on the control rod. However rod will still drift out (simulated collet fingers stuck retracted).

Cues:

**When dispatched, respond as the Auxiliary Building Operator to isolate the HCU for control rod 24-17 FD. After a short time delay report the HCU is isolated.**

**Simulator Operator once control rod has been inserted to position 00 and personnel have been dispatched to isolate the control rod at the HCU, REMOVE Malfunction z161161 for control rod 24-17.**

Allow time for the SS to identify the Tech Specs Associated with a disabled control rod. This should be a LCO for the control rod since it is disabled in the inserted position TS 3.1.3 Condition C.

Cue:

**If asked, respond as Reactor Engineering that analysis of core conditions need to be done to determine the affects of the control rod being fully inserted and further control rod movements should be suspended until the analysis is competed and an action plan developed.**

The SS should mention that if a second control rod drifts that it is considered multiple drifts and the reactor will be manually scrammed per the Operations Philosophy.

### **ESF Transformer 21 trouble and loss**

Two minutes after the Tech Specs have been identified, **activate TRIGGER 2.**

ESF Transformer 21 Trouble alarm will be received followed 3 minutes later by a trip of the ESF Transformer. When the Division 2 Diesel Generator fails to start it will leave bus 16AB de-energized. The BOP operator will manually re-energize the bus from ESF Transformer 11.

Division 3 Diesel Generator will be operating carrying 17AC bus.

Cues:

**If asked, respond as the Outside Operator to investigate the ESF Transformer 21 Trouble either at the Transformer or the Transformer alarm panel in the Upper Control Room.**

**If asked, respond as the Outside Operator to report to Division 2 Diesel Generator to investigate the trip of the Diesel Generator. Also if asked to check Division 3 Diesel Generator.**

**Report as the operator at Division 2 Diesel Generator that the diesel is tripped on Differential Overcurrent.**

**Circ Water Blowdown from pump discharge Remote Function N71195 to cwblwdn.**

The crew will assess equipment that has been lost and the SS will prioritize the restoration of the plant equipment.

	<b>Identified</b>	<b>Restored</b>
Instrument Air		
Plant Service Water		
Drywell Chilled Water		
Resetting half isolation signals		
Plant Chilled Water (Steam Tunnel temperature control)		
Floor and Equipment Drains		
Fire Protection		
RWCU		

Cues:

**As asked, assist in the restoration of systems.**



## **Feedwater rupture in the Drywell**

Eight minutes after the bus power is restored and the Lead Evaluator concurs, **activate TRIGGER 3.**

The reactor will scram on Drywell pressure and will continue to rise from the Feedwater Line Break.

All Control Rods will insert.

B21-F065B Feedwater Isolation Valve will close when the operator gives it the signal to close.

Approximately 1 minute after the Reactor Scram, ramp rr063b to 4% over 2 minutes.

Division 1 ECCS will not automatically initiate on the LOCA.

HPCS Injection valve E22-F004 will fail to open on signal.

Crew will implement actions of EP-2 and EP-3.

After the LOCA is detected, perform the following attachments when requested.

Attachment 12 Defeat SDC interlocks	4 minutes to DONE
-------------------------------------	-------------------

Attachment 12 for RHR 'A' can be of use.

RCIC and RHR 'B' Shutdown Cooling line are not available due to the 'B' Feedwater Line break.

Once B21-F065B is closed Condensate and Feedwater can be restored through the 'A' Feedwater injection line and level restored.

Attachments 25 (Condensate Transfer) and 26 (Fire Water) can not be installed by any remote functions just acknowledge the request.

## **TERMINATION**

Once Reactor level is being restored with Condensate/Feedwater or Low Pressure ECCS and the Lead Evaluator concurs the scenario may be terminated.

## **Critical Tasks**

- Recognize failure of Division 1 to initiate and manually initiate Division 1.
- Isolate the failed Feedwater line and re-establish Condensate/Feedwater or when RPV level reaches -160 inches wide range, Emergency Depressurizes the RPV to allow injection from Low Pressure systems (if level cannot be restored and maintained above -192 inches).

## Emergency Plan Procedure – Emergency Action Level Classification

Alert based on 10-S-01-1 Attachment I EAL 2.2.1.

Appendix D Operator Actions Form ES-D-2

Op-Test No.: _____ Scenario No.: <u>2</u> Event No.: <u>1</u>		
Event Description: <b>Place Standby Service Water 'A' in service for chemical addition.</b> <b>(EPI 04-1-03-P41-1 &amp; SOI 04-1-01-P41-1)</b>		
Time	Position	Applicant's Actions or Behavior
	BOP	Starts SSW 'A' per EPI and SOI and aligns through components.

Op-Test No.: _____ Scenario No.: <u>2</u> Event No.: <u>2</u>		
Event Description: <b>Raise Reactor power using Control Rods from 45 % to 49 %</b> <b>(Control Rod Pull Sheet)</b>		
Time	Position	Applicant's Actions or Behavior
	SS	Conduct reactivity manipulation brief.
	RO	Withdraws control rods in individual or gang per control rod pull sheet to raise power to 49 %.
	BOP	Assists RO in Control Rod selection verification, monitors Pressure, Level, Power, and Turbine Loading.

Op-Test No.: \_\_\_\_\_ Scenario No.: 2 Event No.: 3

Event Description: **Withdraw control rods to raise power. (Control Rod Pull Sheet)**

**Control Rod 24-17 Drift out of the core, insert control rod per ONEP.  
(ONEP 05-1-02-IV-1)**

Time	Position	Applicant's Actions or Behavior
	RO	Responds to Control Rod Drift annunciator. (ARI 04-1-02-1H13-P680 4A2-E4)
	RO	Identifies the drifting control rod using the Display Selection and the Full Core Display.
	RO	Selects the drifting control rod and applies an insert signal using either the INSERT or IN TIMER SKIP pushbutton to move the control rod to position 00. Once at position 00 if the insert pushbutton is release the control rod will begin to drift outward again requiring the operator to apply a continuous insert signal to hold the control rod at position 00. Reducing Drive Water DP will not stop drift. (Collet Fingers stuck retracted)
	SS	Dispatches operators to isolate the HCU for control rod 24-17 (FD) per the ONEP 05-1-02-IV-1 section 3.2.1 using valves 103 FD and 105 FD.
	SS	Reviews Technical Specifications 3.1.3 for applicability and should identify Condition C and the LCO actions are completed.
	SS	Contact Reactor Engineering to analyze the insertion of the control rod to position 00 and disarming the control rod HCU and its affects on the core.
	SS	Inform the crew of control rod 24-17 is still considered drifting until Reactor Engineering analysis is complete and if another control rod drifts that will be considered a second drifting control rod per 02-S-01-27 section 6.5.3 and a reactor scram would be warranted.

Op-Test No.: _____ Scenario No.: <b>__2__</b> Event No.: <b>__4__</b> Event Description: <b>ESF Transformer 21 Trouble and Trip with a failure of Division 2 Diesel Generator</b> <b>(ARI 04-S-02-SH13-P807; 04-1-02-1H13-P864 &amp; ONEP 05-1-02-I-4)</b>		
Time	Position	Applicant's Actions or Behavior
	BOP	Responds to ESF Transformer 21 Trouble alarm. (ARI 04-S-02-SH13-P807 4A-F2)
	SS	Dispatches an operator to either the Alarm panel 2H13-P811 to determine the cause of the alarm.
	SS	Dispatches an operator to ESF Transformer 21 to investigate the alarm.
	BOP	Respond to trip of ESF Transformer 21 and identify bus 17AC has been re-energized by DG13 and bus 16AB is still de-energized due to a trip of DG12. (ARI 04-1-02-1H13-P864 2A-H1 and 2A-B1)
	BOP	Re-energizes bus 16AB from either ESF Transformer 11. (ONEP 05-1-02-I-4 section 2.1)
	BOP	Restores Division 2 isolation valves for Instrument Air and Plant Service Water. (Drywell Chilled Water valves should still be open (MOVs).) (ONEP 05-1-02-I-4 section 3.1.2)
	RO/BOP	Identify equipment and systems affected by the power loss. May refer to SOI 04-1-01-R21-16 load lists in Table 1.
	SS	Dispatches an operator to Division 2 Diesel Generator to investigate the Diesel Generator trip.
	SS	Prioritize the restoration of systems. One should be Plant Chilled Water. Dispatch the Auxiliary Building Operator to the Plant Chillers and order the monitoring of Auxiliary Building Steam Tunnel temperature by the RO. (As steam tunnel temperature rises Group 1 isolation is a possibility.)

Op-Test No.: _____ Scenario No.: <b>2</b> Event No.: <b>4</b> (Cont.) Event Description: <b>ESF Transformer 21 Trouble and Trip with a failure of Division 2 Diesel Generator</b> <b>(ARI 04-S-02-SH13-P807; 04-1-02-1H13-P864 &amp; ONEP 05-1-02-I-4)</b>																													
Time	Position  <input type="checkbox"/> <input type="checkbox"/>	Applicant's Actions or Behavior <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; text-align: center;"><input type="checkbox"/><input type="checkbox"/><input type="checkbox"/>RO/B</td> <td style="width: 20%; text-align: center;">OP<input type="checkbox"/><input type="checkbox"/>Identif</td> <td style="width: 20%; text-align: center;">y equipme</td> </tr> <tr> <td>systems affect</td> <td>e</td> <td>d</td> </tr> <tr> <td>e power loss. <input type="checkbox"/>May</td> <td>r</td> <td>e</td> </tr> <tr> <td>SOI 04-1-01-R21-16 lo</td> <td>a</td> <td>d</td> </tr> <tr> <td>in Table 1.<input type="checkbox"/><input type="checkbox"/><input type="checkbox"/><input type="checkbox"/><input type="checkbox"/><input type="checkbox"/><input type="checkbox"/>SS<input type="checkbox"/><input type="checkbox"/>Dispatch s</td> <td></td> <td></td> </tr> <tr> <td>rator to Division 2</td> <td>D</td> <td>i</td> </tr> <tr> <td>enerator to investigate t</td> <td>h</td> <td>e</td> </tr> <tr> <td>I Generator trip</td> <td>.</td> <td></td> </tr> <tr> <td>SS<input type="checkbox"/><input type="checkbox"/>P</td> <td>r</td> <td>i</td> </tr> </table>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> RO/B	OP <input type="checkbox"/> <input type="checkbox"/> Identif	y equipme	systems affect	e	d	e power loss. <input type="checkbox"/> May	r	e	SOI 04-1-01-R21-16 lo	a	d	in Table 1. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> SS <input type="checkbox"/> <input type="checkbox"/> Dispatch s			rator to Division 2	D	i	enerator to investigate t	h	e	I Generator trip	.		SS <input type="checkbox"/> <input type="checkbox"/> P	r	i
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w	a ter.	Dispatch the Auxiliary Building Operator																											
t h	e PI	a nt Chillers and order the monitoring of Auxiliary Building Steam T unnel temperature by the RO. (As steam tunnel temperature rises Group 1 isolation is a possibility.) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Appendix D <input type="checkbox"/> Operator Actions <input type="checkbox"/> Form ES-D- <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Op-Test No.: _____ Scenario No.: <b>2</b>  Event No.: <b>4</b> (Cont.) <input type="checkbox"/> <input type="checkbox"/> Event Description: <b>ESF Transform e r 21 Trouble and Trip with a failure of Division 2 Diesel Generator (ARI 04-S-02-SH13-P807; 04-1-02-1H 13-P864 &amp; ONEP 05-1-02-I- 4 )<input type="checkbox"/><input type="checkbox"/><input type="checkbox"/><input type="checkbox"/><input type="checkbox"/>Time  <input type="checkbox"/>Position<input type="checkbox"/><input type="checkbox"/>Applicant's Actions          o r Behavior<input type="checkbox"/><input type="checkbox"/><input type="checkbox"/><input type="checkbox"/><input type="checkbox"/><input type="checkbox"/><input type="checkbox"/><input type="checkbox"/>SYSTEM<input type="checkbox"/>IDENTIFIED<input type="checkbox"/>RESTORED<input type="checkbox"/><input type="checkbox"/>          Instrument       </b>																											

Op-Test No.: \_\_\_\_\_ Scenario No.: **2** Event No.: **5**

Event Description: **Feedwater Rupture in the Drywell with leakage past check valves from the Reactor**  
**(EOP 05-S-01-EP-2 and 05-1-01-EP-3)**

Time	Position	Applicant's Actions or Behavior
	RO	Recognizes scram on High Drywell Pressure/Low Reactor Water level and performs the immediate actions for Reactor Scram. Reports all rods fully inserted and places the Reactor Mode Switch to SHUTDOWN. Performs Scram Report.
	RO	Recognizes loss of ability to feed the reactor with Condensate and Feedwater. Communicates the loss to the SS. Depending on conditions, RO may recognize which feed line has rupture.  Indications on H13-P680 section 2B indicators: A FW FLO C34-R604A downscale B FW FLO C34-R604B upscale A FW FLO C34-FR-R616 Blue Pen downscale B FW FLO C34-FR-R616 Red Pen upscale
	RO	Secures the Condensate and Feedwater Systems by tripping all operating pumps and attempt to isolate the affected Feedwater line by closing B21-F065B Feedwater Inlet Shutoff Valve on H13-P680 section 2C.
	SS	Enters EP-2 and EP-3, orders the BOP Operator to initiate HPCS, RCIC and inhibit ADS (if HPCS auto initiated injection valve E22-F004 is failed closed).
	BOP **	Recognizes the failure of Division 1 to initiate and manually initiates Division 1 ECCS.
	BOP	Verifies/initiates HPCS injection (recognizes failure of HPCS injection valve E22-F004)
	BOP or RO	Verifies/initiates RCIC (If RO/SS determine which Feedwater Line is ruptured prevents operation of RCIC – pumps into line with break.)

\*\* Critical task

Op-Test No.: \_\_\_\_\_ Scenario No.: **2** Event No.: **5** (Cont.)

Event Description: **Feedwater Rupture in the Drywell with leakage past check valves from the Reactor**  
**(EOP 05-S-01-EP-2 and 05-1-01-EP-3)**

Time	Position	Applicant's Actions or Behavior
	SS	Orders CRD maximized and possible initiation of SLC. (Optional)
	RO/BOP	Maximizes CRD for FLOW per operator aid.
	SS	Dispatches EP Attachments to be installed Attachment 12 RHR through Shutdown Cooling (May note not to perform for RHR 'B') Attachment 25 Condensate Transfer injection Attachment 26 Fire Water injection
	RO/BOP	Reports the isolation of B21-F065B allowing the restoration of Condensate and Feedwater for injection to the reactor vessel.
	SS **	Orders restoration of Condensate and Feedwater for RPV level control using the Startup Level Control Valve through the 'A' Feedwater Line with a Normal RPV Level Band (+11.4 to 53.5 inches).
	RO **	Aligns Condensate and Feedwater for injection to the RPV through 'A' Feedwater Line using one or two Condensate and Condensate Booster Pumps with one Reactor Feed Pump through the Startup Level Control Valve.
	SS	Dispatches Operators, electricians to investigate problems with HPCS.

\*\* Critical task

Op-Test No.: \_\_\_\_\_ Scenario No.: **2** Event No.: **5** (Cont.)

Event Description: **Feedwater Rupture in the Drywell with leakage past check valves from the Reactor**  
**(EOP 05-S-01-EP-2 and 05-1-01-EP-3)**

Time	Position	Applicant's Actions or Behavior
<b>IF the closure of B21-F065B is not noted or accomplished, the following steps will be taken to restore RPV Level.</b>		
	SS **	Orders alignment of Low Pressure ECCS for injection to the Reactor.
	BOP or RO **	Align Low Pressure ECCS for injection.
	SS **	If Reactor Level drops below – 160 inches, orders Emergency Depressurization with 8 SRVs (at least 5 SRVs should be open)
	BOP or RO **	On orders, opens 8 SRVs using handswitches (initiation pushbuttons may be used initially, however should be followed with handswitches.)
	SS **	If conditions require RPV Flooding, orders injection to attain RPV pressure 57 psig above Containment pressure
	BOP or RO	Verifies injection to the RPV with Low Pressure ECCS.
	RO	Restores level using LP ECCS with band of +30 inches to -30 inches Wide Range.

\*\* Critical task



Facility: **GRAND GULF NUCLEAR STATION** Scenario No.: **3** Op-Test No.: **BACK UP**

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Objectives:** To evaluate the candidates' ability to operate the facility in response to the following evolutions:

- 2 1. Start 2<sup>nd</sup> Condensate Pump and Condensate Booster Pump.
- 3 2. Raise Reactor Power/ Pressure by withdrawing control rods.
- 4 3. Respond to a stuck control rod.
- 5 4. Respond to a trip of LCC 15BA3.
- 6 5. Respond to an automatic and manual scram function failure; ATWS ARI/RPT will insert control rods with *three* control rods stuck withdrawn.
- 7 6. Recognize the failure of MSIVs to completely isolate and take actions to isolate the Main Steam Lines.
- 8 7. Recognize and respond to a steam leak in the Auxiliary Building Steam Tunnel. Take actions for mitigation of the leak with a failure of the MSIVs to fully isolate.
- 9 8. Take actions per the EOPs in response to three stuck control rods following a Reactor Scram.

**Initial Conditions:** Reactor Power is at 1 % plant heatup and pressurization is in progress. The Reactor is  $\approx$  400 psig with 1 Condensate and Condensate Booster Pump in service on Startup Level Control. Step 80 of the Control Rod Movement Sequence.

**INOPERABLE Equipment**

APRM 'H' is INOP due to a failed power supply card

LPCS Pump is tagged out of service for motor oil replacement and will be returned to service in two (2) hours.

ESF-12 Transformer is tagged out of service for Entergy – Mississippi maintenance.

Appropriate clearances and LCOs are written.

**Turnover:** Continue power ascension. Ready to Start second Condensate and Condensate Booster Pump. There are scattered thundershowers reported in the Tensas Parish area.

Scenario **3 Backup** (Continued)

Event No.	Malf. No.	Event Type*	Event Description
1		N (RO)	Start 2nd Condensate and Condensate Booster Pumps. (SOI 04-1-01-N19-1)
2		R (RO)	Raise reactor power and pressure by withdrawing control rods. (IOI 03-1-01-1 and Control Rod Movement Sheet)
3	1 z022022 _ 40_45	C (RO/ BOP) TS (SS)	Respond to a stuck control rod during withdrawal. (ONEP 05-1-02-IV-1) Complete <b>Technical Specification</b> determination.
4	2 r21142t	C (BOP/ RO) TS (SS)	Respond to a trip of Load Control Center 15BA3. (ONEP 05-1-02-I-4; 05-1-02-III-5; and SOI 04-1-01-R21-15) Complete <b>Technical Specification</b> determination.
5	3 c71162	C (RO)	Recognize a failure to scram using RPS and manually scram the reactor using ATWS ARI.
6	4 ms183b ms184b att9	I (BOP)	Recognize the failure of MSIVs to completely isolate and take actions to isolate the Main Steam Lines. (ONEP 05-1-02-III-5)
7	5 ms067b @ 20% ms066b @ 0.2% ramp to 10%	M (ALL)	Recognize and respond to a steam leak in the Auxiliary Building Steam Tunnel. Take actions for mitigation of the leak with a failure of the MSIVs to fully isolate.
	6 z022022 _ 36_25 _12_09	C (RO)	Recognize the failure of two additional control rods to fully insert on the Reactor Scram. (Three Rods Out) insert control rods (ONEP 05-1-02-IV-1)

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

**Critical Tasks**

- 1 Manually scram the reactor.
- 2 Isolate the main steam lines.

### Scenario 3 **BACKUP** (Continued)

#### Crew Turnover:

Rx is at 1% CTP.

Reactor pressure is approximately 400 psig.

Plant Startup and Heat up is in progress.

One Condensate and Condensate Booster Pump are in service on the Startup Level Control Valve.

Control Rod Movement is on Step 80 of the Control Rod Movement Sequence.

APRM 'H' is failed due to a failed power supply card and bypassed.

LPCS Pump is tagged out of service for motor oil replacement. (Expected return to service is two hours)

ESF-12 Transformer is tagged out of service for Entergy – Mississippi maintenance.

Appropriate clearances and LCOs are written.

Continue to bring the plant to full power per IOI-1 step 6.2.13.

Start both a Condensate and Condensate Booster Pump. Radwaste is ready to put on additional Pre-coat filters and Deep Bed Demineralizers as necessary.

Plant EOOS factor is 9.7 GREEN.

There are scattered thunderstorms reported in the Tensas Parish area.

**Simulator Setup:** (Scenarios may be setup and shot into encrypted ICs and Password protected.)

Start the process from a new simulator load.  
Reset to IC-8.

Verify or perform the following:

IC:	8
OOS:	APRM H (Place in Bypass w/ Caution tag) LPCS Pump (Place tag on start HS) ESF XFMER 12 (Place tag on J3885, 152-1903, 152-1904, 152-1905, 152-1511, 152-1611, 152-1704 HS)
Active malfunctions:	<b>z022022_40_45</b> Control Rod 40-45 stuck <b>z022022_36_25</b> Control Rod 36-25 stuck <b>z022022_12_09</b> Control Rod 12-09 stuck <b>ms183b</b> MSIV B21-F022B failed open ( <b>as-is</b> ) <b>ms184b</b> MSIV B21-F028B failed open ( <b>as-is</b> ) <b>c71162</b> Failure to Automatic and Manual scram
Remote functions	<b>c51262</b> APRM 'H' Function Switch to <b>STDBY</b>
Active overrides isolation	<b>epatt09 DONE</b> EP Attachment 9 Defeat MSIV/Group 1  <b>(insert override after simulator is initialized)</b>
Pending overrides	None
Pending malfunctions:	<b>r21142t</b> LCC 15BA3 trip (TRG 1) <b>ms066b @ 0.2%</b> Main Steam Line B steam leak in Auxiliary Building Steam Tunnel (TRG 2) <b>ramp to 10% over 3 minutes.</b> <b>ms067b @ 20%</b> Main Steam Line B Rupture <b>ramp to 40% over 7 minutes</b> (TRG 3).
Pending component malfunctions:	
Trigger files:	Trigger 1      Loss of LCC 15BA3 Trigger 2      Steam leak in Aux Bldg Steam Tunnel; Automatic Scram Failure and Group 1 Isolation Failure Trigger 3      Steam Rupture in Aux Bldg Steam Tunnel

COMPONENT	PANEL	INDICATION or CONTROL	SIMULATOR CODE	STATUS	DONE
APRM H			c51262	STDBY	
LPCS PUMP	P601-21C		e21643 OUT	OUT	
152-1511	P864-1C	Green light	lo 1r21m601a g	OFF	
	P864-1C	Handswitch	di 1r21m601a	STOP	
152-1611	P864-2C	Green light	lo 1r21m601b g	OFF	
	P864-2C	Handswitch	di 1r21m601b	STOP	
152-1704	P601-16C	Green light	lo 1e22m709 g	OFF	
	P601-16C	Handswitch	di 1e22m709	STOP	
152-1903	P807-1C	Green light	lo 1r21m623 g	OFF	
	P807-1C	Handswitch	di 1r21m623	STOP	
152-1904	P807-1C	Green light	lo 1r21m624 g	OFF	
	P807-1C	Handswitch	di 1r21m624	STOP	
152-1905	P807-1C	Green light	lo 1r21m637 g	OFF	
	P807-1C	Handswitch	di 1r21m637	STOP	
J3885 115 KV Disconnect	P807-1C	Green Light	p81218	OPEN	

Bypass Division 2 APRM Bypass Joystick to APRM H position.

Place LPCS OOSVC handswitch to OOSVC.

Ensure only one Condensate and Condensate Booster Pumps are operating.

Insert control rods in sequence to get at the beginning of step 80 to ensure the Main Steam Bypass Valves are less than 10% open to require control rod movement to raise power and pressure to open the Main Steam Bypass valves

Startup all PDS / SPDS screens. Clear any graphs and trends off of SPDS.

Setup the presently used Cyclops display and verify it is functional.

Ensure the correct startup sequence is available at the P680 for the present IC.  
Install turnover guide, red tag, and LCO paperwork as applicable.

Advance all chart recorders and ensure all pens are inking properly.  
(APRM chart recorders must be turned on and settings for scales on pens 0 – 125 scale)

**ADJUST CRD DRIVE PRESSURE TO 265 PSID.**

### **SIMULATOR OPERATION SCENARIO 3**

Once simulator is reinitialized and setup complete take the simulator out of Freeze.

Once the Crew has taken control note the simulator time.

Condensate Pump and Reactivity change may be reversed at the discretion of the SS.

#### **Startup of Condensate and Condensate Booster Pump**

The Crew will start second Condensate and Condensate Booster Pump per SOI 04-1-01-N19-1.

Simulator Operator will coordinate with the RO for Condensate Pre-coat and Deep Bed Demineralizers as necessary.

#### **Raise Power with control rods**

The Crew will raise reactor power and pressure (opening the Main Steam Bypass Valves to >10% open) by withdrawing control rods. Starting at step 80 of the Control Rod Movement Sequence.

#### **Control Rod 40-45 Stuck**

When control rod 40-45 is selected to be moved, it is stuck. The Crew will implement actions of the Control Rod/Drive Malfunctions ONEP 05-1-02-IV-1 section 3.5. The Crew will attempt to raise Drive pressure to move the control rod but the control rod will NOT move inward or outward.

Cue:

**If asked, respond as Auxiliary Building Operator, the following indications:**

**CRD Drive Filter DP                      15 psid**

**CRD Suction Filter DP                  2.2 psid**

**CRD Backwash Filter DP               2.2 psid**

**CRD Flow Control Valve Station valve lineup and operation is normal.**

**When asked, respond as Auxiliary Building Operator with Local CRD Drive Water Pressure from 1C11R006A/B/C/D as the same reading as the computer point C11N008.**

**If asked, respond as Reactor Engineering, that analysis will have to be performed and an action plan developed. The same applies for System Engineering. At this time it is NOT desired to locally scram the stuck control rod.**

The SS should refer to Technical Specifications for actions concerning the stuck control

rod. Condition A of Tech Spec 3.1.3.

### **Loss of LCC 15BA3**

Two (2) minutes after the Technical Specifications are identified, **activate TRIGGER 1.**

Load Control Center 15BA3 will trip. This will result in a closure of Primary Containment and Secondary Containment air operated valves associated with Instrument Air, Plant Service Water, Fire Protection; Standby Gas Treatment Enclosure Building Fan 'A' and RHR 'A' motor operated valves and Jockey Pump.

Cue:

**If asked, report as Auxiliary Building Operator, circuit breaker 52-15301 is tripped and cannot be reset.**

**If asked, report as Electrical Maintenance, the tripper mechanism in the circuit breaker is damaged and there is no apparent damage to the bus or its associated components. A spare breaker can be moved to the LCC and installed to restore the bus.**

The Tech Spec Identification for inoperable equipment will a post scenario evolution since the loss of the bus and not regaining the bus until after the main event will preclude adequate time to check inoperable equipment.

04-1-01-R21-15 Attachment I has the load list of affected equipment.

Tech Specs

- 3.5.1 ECCS – Operating
- 3.6.1.3 Primary Containment Isolation Valves
- 3.6.1.7 RHR Containment Spray System
- 3.6.1.8 Feedwater Leakage Control System
- 3.6.2.3 RHR Suppression Pool Cooling
- 3.6.3.2 Primary Containment and Drywell Hydrogen Igniters
- 3.6.4.2 Secondary Containment Isolation Valves
- 3.6.4.3 Standby Gas Treatment System
- 3.8.7 Distribution Systems – Operating

SS Tech Spec reviews will occur post scenario.

Based on the loss of Instrument Air the SS will identify a point at which insertion of a manual scram will be ordered.



## **ATWS**

When the RO inserts a manual scram using RPS either the Reactor Mode Switch to SHUTDOWN or depressing of the Manual Scram Pushbuttons, RPS will not activate. The SS will enter EP-2 then proceed to EP-2A and order activation of ATWS ARI. This will depressurize the Scram Air Header causing control rods to insert. All control rods will insert with the exception of three (36-25 position 48; 12-09 position 48; 40-45 position 12). This will keep operations in EP-2A.

### **Steam Line Break in the Auxiliary Building Steam Tunnel with a failure of MSIVs to isolate fully**

Two minutes after control rods are inserted, **activate TRIGGER 2 (Auxiliary Building Steam Tunnel Steam leak with failure of Group 1 isolation).**

When Crew manually isolates the steam lines, **activate TRIGGER 3 (Steam rupture in Auxiliary Building Steam Tunnel).**

**Three (3) Minutes after Reactor Scram, report as Security white smoke or steam is coming out of the top of the Auxiliary Building.**

**If contacted, report as Radiation Protection, there are NO abnormal radiation surveys of the Auxiliary Building.**

**If contacted, report as Chemistry, there is NO leaking fuel bundles in the reactor.**

SS will take actions per EP-4 for an uncontrolled, unfiltered, and unmonitored release from Secondary Containment.

Six (6) minutes after Trigger 3, **delete malfunction r21142t.**

Cue:

**Report as Auxiliary Building Operator or Electrical Supervisor, circuit breaker 52-15301 has been replaced and is ready for closure.**

## EOP Attachments:

Attachment 18 Defeat ATWS ARI	4 minutes to DONE
Attachment 19 Defeat RPS	5 minutes to DONE
<i>If Attachment 20 is the only attachment requested change the time to 3 minutes.</i>	
Attachment 20 Defeat RCIS	6 minutes to DONE
Attachment 2 Defeat RCIC Trips	8 minutes to DONE
Attachment 1 Defeat RCIC Suction Xfer	8 minutes to DONE
Attachment 12 Defeat RHR SDC Interlocks	6 minutes to DONE

**Call up the full core display to identify which control rod malfunctions to delete. Once Attachments are installed and Control Rods 36-25; 12-09 are selected for insertion delete malfunctions to allow insertion using RCIS. Maintain control rod 40-45 stuck at its position.**

This will allow the SS to make a decision to traverse to EP-2 from EP-2A.

## TERMINATION

ONCE:

Systems are aligned for RPV level control and pressure control.

And Control Rods 36-25 and 12-09 have been inserted.

And the Lead Evaluator concurs the scenario may be terminated.

## **Critical Tasks**

- Manually scram the reactor.
- Isolate the main steam lines.

## **Emergency Plan Procedure – Emergency Action Level Classification**

Site Area Emergency based on 10-S-01-1 Attachment I EAL 4.3.1.

Appendix D	Operator Actions	Form ES-D-2
Op-Test No.: _____ Scenario No.: <u>3</u> Event No.: <u>1</u>		
Event Description: <b>Start second Condensate and Condensate Booster Pump (SOI 04-1-01-N19-1 section 4.3)</b>		
Time	Position	Applicant's Actions or Behavior
	RO	Starts second Condensate Pump. (04-1-01-N19-1 Section 4.3.2a)

Op-Test No.: \_\_\_\_\_ Scenario No.:   3   Event No.:   2  

Event Description: **Withdraw control rods to raise power.**

**(Control Rod Movement Sequence & 03-1-01-1)**

Time	Position	Applicant's Actions or Behavior
	SS	Provides Reactivity brief to crew.
	RO	Verifies control rods and positions per Control Rod Movement Sequence and selects control rods per next gang of control rods. (May select Individual or Gang movement and may select any Control Rod in the Gang.)
	BOP	Act as Verifier for Control Rod movements.
	RO	Moves Control Rods per Control Rod Movement Sequence. (04-1-01-C11-2 Sections 4.3 and 4.5)
	RO	Withdraws control rods to achieve 10% Main Steam Bypass Valve Opening per 03-1-01-1 Section 6.2.13a.

Op-Test No.: \_\_\_\_\_ Scenario No.:   3   Event No.:   3  

Event Description: **Control Rod 40-45 stuck**  
**(ONEP 05-1-02-IV-1 and Technical Specifications 3.1.3 & 3.1.4)**

Time	Position	Applicant's Actions or Behavior
	RO	Identifies control rod 40-45 will not move with normal drive pressure from CRD.
	SS	Directs actions per ONEP 05-1-02-IV-1 section 3.5. May skip section 3.5.1. This section is not required based on plant conditions.
	SS/BOP	Dispatches local operators to check CRD operating parameters.
	SS	Orders raising CRD Drive Pressure in 25 psid increments.
	BOP	Adjusts C11-F003 CRD Pressure Control Valve to raise CRD Drive Pressure 25 psid.
	RO	Attempts to move control rod 40-45 and determines the control rod will not move.
The steps of raising CRD Drive Pressure and attempting to withdraw the control rod will be repeated up to 475 psid. Once indication on H13-P601 is off scale high indication will either be local or using PDS Computer Point. C11N008.		
	SS	Once CRD Drive Water Pressure is at 475 psid, CRD Drive Water Pressure will be reduced to normal and an alternate control rod will be moved to verify this is not a generic problem. (ONEP 05-1-02-IV-1 Section 3.5.5)
	RO	Moves alternate Control Rod.
	SS	Consults Technical Specifications 3.1.3 condition A and 3.1.4 and contacts System and Reactor Engineering for consideration of scrambling control rod 40-45.

Op-Test No.: \_\_\_\_\_ Scenario No.: 3 Event No.: 4

Event Description: **Loss of Load Control Center (LCC) 15BA3  
(ONEP 05-1-02-I-4, 05-1-02-V-6, SOI 04-1-01-R21-15 and Technical Specification 3.8.7)**

Time	Position	Applicant's Actions or Behavior
	BOP	Identifies the loss of power to LCC 15BA3 and that circuit breaker 52-15301 on H13-P864 is open. (ARI 04-1-02-1H13-P864 1A-C3 & E3)
	SS	Directs BOP operator to attempt to close circuit breaker 52-15301. (ONEP 05-1-02-I-4 Section 2.2)
	BOP	Attempts to close circuit breaker 52-15301 and determines breaker did not close and reports to SS.
	SS	Dispatches an operator and electricians to circuit breaker 52-15301 to investigate failure.
	SS	Takes actions per ONEP 05-1-02-I-4, Loss of AC Power and Alarm Response Instructions.
	SS	Orders control room operators to determine equipment and systems affected by the loss.
Systems of primary concern: Instrument Air to Scram Air Header and Main Steam Isolation Valves. Plant Service Water to the plant. Plant Chillers will trip on loss of Plant Service Water Plant Chilled Water isolation valves will eventually close due to loss of Instrument Air		
	SS	Establishes conditions that will warrant inserting a manual reactor scram.
	RO/BOP	Assess equipment affected by the power loss. (04-1-01-R21-15 Attachment I)
	SS	<b>POST SCENARIO</b> – Consults Technical Specifications to determine LCO status. (T/S 3.8.7; 02-S-01-17 Attachment II)

Op-Test No.: \_\_\_\_\_ Scenario No.:   3   Event No.:   5  Event Description: **Failure to Scram**

Time	Position	Applicant's Actions or Behavior
	RO**	Places the Reactor Mode Switch to Shutdown or arms and depresses at least one Manual Scram Pushbutton per RPS Division (A & B).
	RO	Reports failure of RPS to actuate.
	SS	Enters EP-2A.
	RO	Reports downshift of Recirc Pumps to Slow Speed.
	Depending upon the pace of actions from EP-2A, control rods may begin to drift inward. This is acceptable.	
	RO**	On orders initiates ATWS ARI/RPT.
	BOP	On orders inhibits ADS.
	BOP	On orders initiates and overrides HPCS.
	RO	Reports all control rods have fully inserted except for three (40-45; 36-25 & 12-09)
	SS	Specifies RPV level band and method of pressure control.
	RO	Verifies alignment of Condensate and Feedwater systems on Startup Level Control and maintains reactor level within level band specified by the SS.
	BOP	Controls reactor pressure based on orders of SS with Main Steam Bypass valves.

\*\* Critical Task

Op-Test No.: \_\_\_\_\_ Scenario No.:   3   Event No.:   6  

Event Description: **Respond to a steam leak in Auxiliary Building Steam Tunnel with a failure to isolate. (EP-4) w/ Automatic Scram failure**

Scenario is geared toward EP-4 actions, stuck control rods are a component malfunction to implement actions for control rod insertion.

Time	Position	Applicant's Actions or Behavior
	BOP	Announces Steam Tunnel temperature alarms and EP-4 entry and failure of Group 1 to isolate.
	BOP**	Manually isolates MSIVs and reports failure of 'B' Main Steam Line to isolate and closes B21-F098B Main Steam Shutoff Valve. (Operator may close all 4 B21-F098's.)
	SS	Enters EP-4 for Steam leak in Auxiliary Building. (SS should recognize no conditions exist warranting lowering of reactor level for ATWS.)
	SS	Directs Reactor water level control band using Condensate and Feedwater on Startup Level Control.
	RO	Maintains Reactor water level using Condensate and Feedwater on Startup Level Control.
	SS	Directs Reactor pressure control using SRVs. (Optional)
	BOP	Maintains Reactor pressure using SRVs. (Optional)
	SS	Directs use of RHR 'B' for Suppression Pool Cooling. (Optional)
	BOP	Starts RHR 'B' in Suppression Pool Cooling. (Optional)

\*\* Critical Task

Op-Test No.: \_\_\_\_\_ Scenario No.: 3 Event No.: 6 (Cont.)

Event Description: **Respond to a steam leak in Auxiliary Building Steam Tunnel with a failure to isolate. (EP-4) w/ Automatic Scram failure**

Time	Position	Applicant's Actions or Behavior
	SS	Directs installation of EOP Attachment 20. (May order Attachments 18 and 19 but should not be required if RPV Level and pressure are being maintained in the normal operating band. ATWS ARI may be reset to normal and RPS failed to actuate. May order Attachment 21 and if so must clear this attachment to facilitate insertion of stuck control rods.)
	RO	Resets ATWS ARI/RPT to allow use of RCIS to insert control rods.
	SS	Upon report that LCC 15BA3 is ready to be restored, orders restoration of LCC 15BA3.
	BOP	Restores LCC 15BA3 by closing 52-15301. (SOI 04-1-01-R21-1 section 4.1)
	BOP	Restores Auxiliary Building isolation valves. (ONEP 05-1-02-III-5)(Auxiliary Building Bypass switches are not required to complete this.)
	SS	On orders insertion of control rods that are not fully inserted. (EOP EP-2A and ONEP 05-1-02-I-1 section 3.5.5)
	RO/BOP	Sets up CRD for driving control rods. (SOI 04-1-01-C11-1 Attachment VIII)
	RO	Inserts control rods 36-25 and 12-09 (order not specified).
	RO	Attempts to insert control rod 40-45 and determines control rod is immovable.
	SS	Determines Reactor will remain sub-critical under all conditions without boron and the single control rod stuck out and exits EP-2A